The Philosophy of Language in Gadādhara's *Śaktivāda*

Jonardon Ganeri
Wolfson College, Oxford
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Abstract of Thesis

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Name: Jonardon Ganeri *Degree Submitted for: D.Phil.*

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This thesis is a study of the theory of meaning developed by the seventeenth century Indian Naiyāyika philosopher Gadādhara Bhaṭṭācārya. It has four chapters and an appendix. In chapter 1, I highlight some of the problems about meaning and reference thematised by the Indian philosophical tradition during its 'classical' period (third century B.C.E. to seventh century C.E). The work of the earliest grammarians proved very influential. We tend to associate the name of the grammarian Vyāḍi with the origins of the study of singular reference in classical India, and I look at his theory, the problems it faced, and the innovations of early Nyāya, Mīmāṃsā and grammarian authors. In the second chapter, I discuss Gadādhara's analysis of the semantics of nominal stems, his construction of a 'two-component' theory of meaning, and his criticisms of the work of earlier Navya-Naiyāyikas, especially Vardhamāna and Raghunātha. The main theme of this debate concerns the failure of a realist or referential theory of meaning to serve as a complete theory of meaning, one which recognises both the intensional and the context-invariant elements in the meaning of nominal expressions. The third chapter deals with Gadādhara's theory of anaphoric pronouns. I argue in particular that Gadādhara's use of a two-component meaning theory enables him to construct a theory of pronouns which significantly improves on the proposals of earlier Navya-Nyāya authors. In the fourth chapter, I discuss the epistemological dimension to the Nyāya conception of language; the Nyāya doctrine that linguistic competence consists in the knowledge of a compositional meaning theory; the role of convention in the Nyāya theory, and their thesis that conventions are grounded in the authority of the name-giver. I have added an appendix in which I examine the technical language by means of which Gadādhara is able to give his arguments great precision. I show that this language can be translated into a certain fragment of quantified first-order predicate logic.

Contents

Preface

The *Śaktivāda* is a seventeenth century work in the theory of meaning, written by the Naiyāyika philosopher Gadādhara Bhaṭṭācārya. Gadādhara (1604 - 1709 C.E.) was the last great Nyāya author of pre-colonial India, and also its most refined exponent. His works are marked by extreme brevity of expression, using the peculiarly formal mode of writing which characterises works in the Nyāya tradition. He wrote definitive commentaries on the major classics of Navya-Nyāya, and also, unusually, a series of short books on particular themes and philosophical puzzles. The *Śaktivāda* is one such work, in which Gadādhara takes a fresh look at the notion of meaning and the difficulties in constructing meaning theories for a variety of referring expressions. In the first part of the book, he discusses the Nyāya concept of meaning and develops a meaning theory for the uninflected nominal stems (*nāman*, *prātipadika*). From the time of the early grammarians, the Indian linguistic tradition had taken the nominal stems as the fundamental category of linguistic expression. Certain problems came to be thematized, such as whether their significance is singular or general, and, if singular, whether a criterion of synonymy can be given. Gadādhara's discussion of these questions is perhaps the most sophisticated we have. In the second part of the *Śaktivāda*, Gadādhara engages in a far-reaching analysis of the semantics of a variety of other referring expressions. Ever since Praśastapāda, the Nyāya-Vaiśeṣikas have been extremely interested in the puzzling semantics of the term "*ākāśa*", which was introduced as a theoretical name for the substratum of sound, just as "æther" was a theoretical name for the substratum of electro-magnetic waves. Gadādhara analyses the semantics of this term at length. He also discusses the pronouns "it" or "s/he", "I", "you", "which", and even "own" and "what?"; the demonstratives "this" and "that", and finally, the quantifiers "all" and "one". Indeed, the fame of the *Śaktivāda*, and its

continued use in the *ṭols* and seminaries, is due in large measure to Gadādhara's penetrating analysis of these expressions.

This thesis has four chapters. In the first, I highlight some of the problems about meaning and reference thematised by the Indian philosophical tradition during its 'classical' period, which spanned from the third century B.C.E. to the sixth or seventh century C.E. The work of the earliest grammarians, notably Kātyāyana and Patañjali, cast a strong influence over authors in other philosophical systems, including the writers in early Nyāya, and I look at their instigation of a debate about the meaning of nominal expressions. Following Kātyāyana, we tend to associate the name of another early grammarian, Vyāḍi, with the origins of the study of singular reference in classical India. As applied to generic nominals, his realist theory faced two celebrated objections, whose philosophical significance I shall examine. I look next at the application of his theory to proper names. Attempts in the Grammarian, Nyāya and Mīmāṃsā systems to resolve the problems his theory encountered generated a range of theoretical innovations, which I review in the last three sections.

In the second chapter, I discuss Gadādhara's analysis of the semantics of nominal stems, and his construction of a 'two-component' theory of meaning. Gadādhara is very much indebted to the work of earlier Navya-Naiyāyikas, especially Vardhamāna, Raghunātha and Jagadīśa. I discuss the relative merits of his theory over theirs. The main theme of this debate concerns the extent to which a theory of reference can serve as a complete theory of meaning, one which recognises both the intensional and the context-invariant elements in the meaning of nominal expressions.

The third chapter concerns Gadādhara's theory of pronominal reference. The discussion of pronominal reference in the *Śaktivāda* is interesting because it can be seen as involving a natural extension of the ideas about nominal semantics developed in the previous chapter. We will see in particular that Gadādhara's use of a two-component meaning theory enables him to construct a theory of pronominal anaphora which

significantly improves on the proposals of earlier Navya-Nyāya authors, and indeed, bears comparison with the modern literature on the subject.

At the beginning of the *Śaktivāda*, Gadādhara gives a short but highly informative summary of certain well-attested Nyāya doctrines about language, and especially about the notion of meaning (*śakti*). In the fourth chapter, I elaborate the conception of language to which these doctrines lead. The Nyāya conceive of language as a *pramāṇa*, that is, as a cognitive process leading to the acquisition of beliefs. They take as central the notion of a 'proper' interpretation (*śābdabodha*) of an utterance, which is such that an interpretation is proper only if it is true, and they claim that when an utterance is so interpreted, the interpreter is correctly described as *knowing* that which the utterance expresses. I argue, however, that the epistemological dimension to this conception of language does no work in the Nyāya theory of meaning. Having discussed the epistemology of interpretation, I examine the Nyāya doctrine that linguistic competence consists in the knowledge of a compositional meaning theory. In the final section, I look at the role of convention in the Nyāya theory, and their thesis that conventions are grounded in the authority of the name-giver.

I have added an appendix in which I examine the Navya-nyāya technical language, not only because it is by employing this language that Gadādhara is able to give his arguments great precision, but also because it formalises what the Naiyāyikas regard as a systematic ambiguity in the use of noun phrases. Good Sanskrit does not make much use of articles, or of the applicatives "all" and "some", with the result that even simple sentences like "table is in room" are ambiguous. The Naiyāyikas disambiguate such sentences by claiming that, depending on the context of use, a noun phrase can take any one of three distinct semantic roles: it can function as a singular referring expression, as a predicate, or as a quantifier expression with restricted domain.

In this essay then, I will trace the development of the Indian theory of meaning from its roots in Vyāḍīya grammar to its fullest development in Gadādhara's *Śaktivāda*. In looking for the problems about meaning which the Indian tradition thematized, and

the solutions they put forward, I have taken an approach which is both historical and philosophical. I believe such an approach is not only possible but often necessary for the study of Indian philosophical texts in a modern context. For while the modern philosopher must reconstruct the arguments according to the lights of contemporary philosophical concerns, the problems of Indian philosophy can be properly understood only when we take care to see them in the right cultural and historical setting. In writing this thesis, I have been guided by one main methodological precept, namely to trace, as far as I can, the theories and arguments I discuss to *particular* authors, and to avoid making sweeping generalised statements about the Indian 'schools', Nyāya, Mīmāṃsā, Yogācāra, and so on. The Indian philosophical systems are not well-represented as homogeneous, atemporal wholes, and disputes between thinkers belonging to the same system are often as illuminating and significant as those between philosophers of different traditions.

When I started out on this thesis, I did not for a moment imagine that I should receive so much encouragement, help and advice, so generously given, as I have done. I would like especially to thank Sibajiban Bhattacharyya, John Campbell, Shoryu Katsura, Bimal Matilal, Pradyot Mukhopadhyay, Murali Ramachandran and Mark Sainsbury. This thesis is for my father, Puran Ganeri.

1

Meaning and Reference in Classical India

In this chapter, I attempt to trace the early sources of the Navya-Nyāya theory of meaning. The most important influences derive from the work of the grammarians, Mīmāṃsakas and Naiyāyikas who belonged to the 'classical' period of Indian philosophy. I try to show the problems which authors in this period took to be the central issues concerning the notions of meaning and reference, and the kinds of solutions they offered.

1.1 Early Grammarians on Philosophical Semantics

> Now, what is the 'meaning' (*artha*) of a word? Is it a 'class'/ 'universal feature' (*ākṛti*) or is it a particular object (*dravya*)? [1].

With this question, the grammarian Patañjali (c. 150 B.C.E.) highlighted a dispute about meaning whose significance to the later development of semantic theory in India was to be very great. An earlier grammarian Yāska had already divided words or 'parts of speech' (*pada*) into four groups: nouns or 'names' (*nāma*), verbs (*ākhyāta*), pre-verbs (*upasarga*), and particles or 'invariant words' (*nipāta*). Patañjali's question was about the meaning of the first of these groups, which included the generic nominals like "pot" or "cow"[2], as well as proper names and pronouns. It seemed to the early grammarians that the linguistic significance of such words consists in their being associated with an entity of some kind. Yāska had called this entity a *sattva* 'thing', and other grammarians used the term '*artha*' in the sense of meaning-relatum or 'correlated entity'. Considering this entity to be external, the early grammarians took for granted a 'realist', as opposed

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[1] *kiṃ punar ākṛtiḥ padārthaḥ, āhosvid dravyam.* Patañjali, (1968: 78).

[2] I here follow the usual practise of the grammarians, who use the term "generic word" (*jātiśabda*) to denote any such common noun phrase, regardless of whether it is a natural kind term.

to 'ideational', theory of meaning: the meaning of an entity is the external object for which it stands. Assuming, then, that the meaning of a nominal consists in its correlation with an object, Patañjali asks what sort of object this could be. Consider the following sentences, in each of which the same nominal "cow" occurs:

(1) (The) cow is white

(2) (The) cow is an animal.

Note that Sanskrit does not use definite articles, the bracketed "(the)" is added only to obtain an English sentence with equivalent sense. Linguistic intuition inclines us to say that sentence (1) is used to make a statement about a particular cow, Śābaleya say. It says of this particular that it is white; so it is true if Śābaleya is white and false if Śābaleya is not white. In keeping with their realist theory, the early grammarians say that the 'meaning' of the nominal "cow" in this sentence is the particular cow Śābaleya. Sentence (2), on the other, is construed, at least on one reading, not as a statement about any particular cow, but rather about the kind or class (the meaning of '*ākṛti*' is open to either interpretation) to which cows belong. It is true if this kind is a species of the genus of animals and false if it is not. Alternatively, we might say that it is true if the class of cows is a subset of the class of animals, and false otherwise. So the 'meaning' of "cow" is the class or species of cows. Patañjali's question highlights the tension here. The same word seems, depending on its context of use, to have both a singular and a general significance. The intuitive analysis of (1) assigns to nominals like "cow" the semantic role of a singular term, referring to an individual cow. But in statements like (2), the semantic role of the nominal is quite different. This sentence, we would like to say, is a statement of generality, asserting of the class of cows that it is included in the class of animals.

Patañjali goes on to link this dispute about the 'meaning' (*artha*) of nominals with two grammatical rules, both taken from Pāṇini's grammar:

> Thinking that a 'class' (*ākṛti*) is the word-meaning, [Pāṇini] says : "To denote a 'class/property' (*jāti*), one may optionally use a plural affix, in the sense of a singular" (P.1.2.58). [But] thinking that a 'substance' (*dravya*) is the word-meaning, he tackled

> (the subject of) *ekaśeṣa* 'one-remainder' by the rule : "When a number of homophonic nominal stems occur with the same case ending, only one of the homophonic nominal stems is retained" (P.1.2.64).[Op. cit.: 79. Trans. Joshi and Roodbergen]

The idea that questions about the meaning-relata of expressions are connected with questions about the validity of certain kinds of grammatical rule marks an important philosophical insight. For one way to make more precise the pre-theoretic idea that the semantic role of a singular term consists in its referring to a particular is to note that there are patterns of inference which are valid only for singular terms and not, say, for quantifier expressions. For example, the inference from "F(a)" and "G(a)" to "There is something which is both F and G" is valid if "a" is taken to be a singular term but not if it is taken to be a quantifier like "something". One cannot validly infer that some one thing is both F and G from the premises "something is F" and "something is G". This is enough to show that the semantic role of a quantifier expression is not the same as that of a singular term, and it captures the thought that the function of a singular term is to introduce a particular object into the discourse, an object about which many different things can then be said. Patañjali apparently regards Pāṇini's rule P 1.2.64 as having a similar significance: anyone who takes the rule to be valid must be assigning to nominals the semantic role of a singular referring expression, and hence associating them with particulars as their meaning-relata. Let us, therefore, look at this rule in more detail.

'One-remainder' *(ekaśeṣa)* is a grammatical rule permitting the replacement of a series of repeated morpheme stems by a single stem, which then takes a dual or plural inflection. Thus from "tree and tree (are F)", we are licensed to derive "two trees (are F)". Using subscripts to distinguish different tokens of the same morpheme stem, the rule can be seen as asserting that a certain inference schema is valid, namely

tree_1 is F
tree_2 is F

Two trees are F.

Patañjali's claim now is that this pattern of inference is valid only if the semantic role of the nominal "tree" is that of a singular term, a term whose semantic value is a particular. It would be a mistake to suppose that this is so because someone who takes the semantic value to be a property cannot even formulate the conclusion of the inference, on the ground that it makes no sense to speak of *two* universals treehood. This is wrong, for as Ramsey famously pointed out, there are two distinct ways to analyse any atomic sentence. The sentence "Socrates is wise", for example, can be regarded either as composed from a singular term "Socrates" and a first level predicate "... is wise", or alternatively as predicating of "...is wise" (or "wisdom") the second level predicate "...is Socrates-instantiated". Likewise, in the sentence "Two trees are F", the dual case-affix could be construed as an adverbial modifier of the co-location relation between two universals, treehood and F-hood. The sentence would be analysed, by one who takes the value of "tree" to be a universal, as stating that treehood is *doubly* co-located with F-hood.

Patañjali's idea is that the 'one-remainder' rule fails for this theorist, not because its conclusion is ill-formed, but because the inference schema would be invalid. It does not follow from "Treehood is co-located with F-hood" and again "treehood is co-located with F-hood" that "Treehood is doubly co-located with F-hood". Translating into a quantificational language, the 'one-remainder' rule would, on the 'Universalist' hypothesis, be a special case of the invalid inference schema

$$(\exists x)(Fx)$$
$$(\exists x)(Fx)$$

$$(\exists x)(\exists y)(x \neq y \ \& \ Fx \ \& \ Fy).$$

If the 'one-remainder' rule *is* valid, it can only be because it is an instance of a quite different pattern of inference, one that involves analysing the nominals as singular terms.

The most obvious candidate is the following inference-schema:

Fa

Fb

(∃x)(∃y)(x≠y & Fx & Fy).

Here each occurrence of the nominal "tree" is be treated like an individual constant, referring to a particular. According to Kātyāyana, this was the view of a certain grammarian Vyāḍi (KV 45 under P1.2.64). It does not matter that this inference pattern is not generally valid, relying as it does on the hidden premise "a≠b"[3], for there is no corresponding hidden premise whose addition would make valid the previous pattern. What is more important to observe here is that this proposal treats each occurrence of a nominal as a distinct individual constant or name: it discerns no more common structure between two tokens, "$tree_1$" and "$tree_2$", than there is between "Rama" and "Sita", or better, the names of two distinct Ramas. We will see in the next section how this lacuna led to a substantial critique of Vyāḍi's theory.

The validity of the 'one-remainder' rule leads to the conclusion that the semantic value of a nominal is a particular. Patañjali, however, mentioned another of Pāṇini's grammatical rules, and claimed that from its validity we can draw just the opposite conclusion, that the semantic value of a nominal is a class/property. P.1.2.58 states that "to denote a 'class/property' (*jāti*), one may optionally use a plural affix, in the sense of a singular". This rule permits one to replace a nominal in the singular with the same nominal in the plural, as in the replacement of "(The) whale is a mammal" to "Whales are mammals". Once again, we can read it as asserting that a certain kind of inference schema is valid, viz.:

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[3] If it were generally valid, one could derive from "Borges and I", the title of a story by Jorge Luis Borges, the phrase "We two"! Compare P 1.2.72, which permits one to derive under the *ekaśeṣa* rule "Those two" from "Devadatta and he".

(The) whale is F

(All)[4] whales are F.

If the nominal "whale" in the premise of this inference were construed as a singular term, referring to an particular whale, the inference would be invalid. Our intuition, however, is that the inference is valid, at least for generic nominals though not for proper names. Kātyāyana indeed excludes proper names from the scope of P 1.2.58. The alternative is to analyse the premise as involving a second level predication, attributing a specific mode of instantiation to the first level expression "whale". It is to be read as "Whalehood is pervaded by F-hood", where the notion of 'pervasion' (*vyāpti*) is such that this implies every whale is F.

In the Indian grammatical tradition, the thesis that the semantic value of a nominal expression is a substance or particular, is known as Semantic Particularism (*vyakti-śakti-vāda*), and the thesis that it is a class-property as Semantic Universalism (*jāti-śakti-vāda*). The first of these doctrines claims that nominals are singular referring expressions, belonging to the same logical category as, for example, proper names and demonstrative pronouns. On the basis of usages like (1), the nominals are analysed as *descriptive indexicals*, which would be distinguished in English by the addition of the determiner "the" or "that". The significance of a sentence in which such a nominal occurs will be singular, its truth or falsity depending on the way things are with a certain particular. This theory, to use a modern term, is an account of the 'object-invoking' or 'referential' use of a nominal expression. The other theory, Semantic Universalism, takes a nominal to be associated not with a particular but with a class or property, and the sentences in which they occur to have general significance. The truth or falsity of a sentence containing a nominal so used does not depend on any particular object, but on the way things are with the entire class.

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[4]The presence of an implicit universal quantifier 'all' in such constructions was explicitly noted by Jayanta (1936: .296).

Patañjali's insight was to link this question about the semantic value of a nominal expression with our intuitions concerning the admissibility of certain grammatical rules, that is, concerning the validity of certain patterns of inference. It seems now that there just three possible positions available. One might claim that nominals are singular referring expressions and deny the validity of inferences based on P 1.2.58. Alternatively, one could argue that the semantic value of nominals are classes/properties and deny the validity of inferences based on the 'one-remainder' rule, P.1.2.64. A final option would be to claim that nominals are semantically ambiguous, taking different sorts of semantic value in different uses. Of these, the first position can be dismissed straightaway, not simply because the inference from "The whale is a mammal" to "All whales are mammals" is obviously valid, but more importantly because there is no way even to express generality if the semantic role of the nominal is always taken as that of a singular term. The early Nyāya author Vātsyāyana explicitly noted this, observing that in such uses as "(A) cow should not be kicked" and "(A) cow is born of (a) cow", the 'meaning-relatum' (*artha*) of the nominal "cow" must be taken to be a class/property[5]. The outstanding issue then is whether the semantic role of a nominal is ever that of a singular term or referring expression, whether, to use a modern phrase, they have an 'object-invoking' use. I will explore this question in the rest of this chapter. The grammarian Vyāḍi proposed a model according to which each token of a nominal such as "tree" behaves like an individual constant or proper name: thus "tree_1" refers to tree_1, "tree_2" to tree_2 etc. We have already seen how such a model validates the 'one-remainder' rule. His theory, however, was subjected to a searching critique, and the hopelessness of analysing a nominal like "tree" as in effect a radically homonymous term revealed. The later grammarian and Nyāya authors developed a more sophisticated theory of meaning for the 'object-invoking' use of nominals, which depended in essence on analysing them on the model of indexical terms, terms with a token-reflexive

[5] See the *Bhāṣya* under *Nyāyasūtra* 2.2.66

reference but governed by a single meaning rule. They took nominals to be systematically ambiguous expressions, as indeed did Patañjali himself. I will also discuss how the Mīmāṃsakas argued instead that the use of nominals to refer to particulars is not a genuine semantic phenomenon at all, and that nominals are never semantically singular terms. They cast doubt on the validity of the 'one-remainder' rule in Pāṇini's grammar.

1.2 Vyāḍi's Theory of Generic Nominals

The early Indian semanticists were primarily interested in the semantics of common noun phrases or *jātiśabda* , for example "[the] cow" or "[the] tree", and it is to the discussion of such terms that we must look for Indian accounts of singular reference. The first such account is generally attributed to the grammarian Vyāḍi (c. 400 B.C.E.), whose main work, the *Saṃgraha*, is no longer extant. Fortunately, his theory was recorded by Patañjali. It states that the meaning of a nominal consists entirely in its being related to an individual (*vyakti*) or substance (*dravya*). Understanding the word is then simply a matter of knowing with which individual the word is related. This is reminiscent of Mill's suggestion that proper names are like name-tags or labels tied to a particular object, such that knowing the meaning of the name is completely characterised as knowledge of a bare association between the name and its bearer. Vyāḍi's theory in fact treats each token utterance of a nominal as if it were a Millian proper name. Thus, each token "$tree_i$" of the nominal "tree" is said to refer to a certain individual, $tree_i$, and this, for Vyāḍi, is a complete account of the meaning of the noun.

Vyāḍi's theory became the target of a strong critique, whose influence on the development of the theory of meaning in the Indian philosophical tradition was to be very considerable. This critique revolved around a pair of powerful arguments, called *ānantya* "limitlessness" and *vyabhicāra* "aberrancy". These arguments may have been

implicit even in Patañjali's *Mahābhāṣya*[6], but came into prominence in the fifth and sixth centuries C.E. in the works of the Buddhist Diṅnāga, the grammarian Bhartṛhari, and the Mīmāṃsaka Kumārila Bhaṭṭa[7]. Although the early Naiyāyika Uddyotakara tried to question their soundness, they seem to have been accepted by virtually all later philosophers, including both Mīmāṃsā and Navya-Nyāya authors. They are mentioned, for example, by Śāntarakṣita and Gaṅgeśa, by later grammarians such as Kauṇḍabhaṭṭa, and were discussed too by the poetician Mammaṭa and the commentators on his *Kāvya-prakāśa*[8]. As we shall see, what the 'limitlessness' and 'aberrancy' arguments show is that Semantic Particularism and a realist theory of meaning cannot be held together: one who takes the semantic value of a nominal, on any occasion of its use, to be a particular must abandon the thesis that its meaning consists entirely in its having a certain semantic value; one who maintains this thesis cannot take the semantic value to be a particular. In the Indian tradition, we find that the Nyāya took the first course, while the Mīmāṃsakas opted for the second.

Let us now look in some detail at the 'limitlessness' and 'aberrancy' arguments. In formulating the two arguments, I will follow for convenience the Navya-Naiyāyika Jayadeva Miśra:

> Suppose we say that one can only understand [a token w_i of a nominal "tree"] if one knows a semantic relation [tying w_i to object x_i]. Then, given that one cannot know such a relation for *limitless* individuals, one would not understand [a token] whose semantic relation one does not know. If, on the other hand, we say that one can understand [a token w_i] without knowing the semantic relation [tying w_i to x_i], then there will be an *aberrancy* between knowledge of semantic relations and understanding[9].

[6]Matilal claims this (1982: 74), but it is not clear to me whether the comments under, for example P1.2.64, would fully justify the attribution.

[7]For Diṅnāga, see Hayes (1988: 255). Vyāḍi's theory is discussed by Bhartṛhari in his *Vākyapadīya*, III.1.2, and in his *Mahābhāṣya-dīpikā*. For Kumārila's views, see *Tantravārtikka* 1.3.33.

[8]Śāntarakṣita (1937: 466), Gaṅgeśa (1901: 557), Mammaṭa (1917: 32). For Kauṇḍabhaṭṭa, see Deshpande (1992).

[9]*yadi yatra śaktigrahas tatra śābdadhīs tad ānantāsu vyaktiṣu śaktigrahābhāvāt agṛhītaśaktike śābdadhīr na syāt, yady anyatra śaktigraho 'nyatra śābdajñānaṃ tadā śaktidhīḥ śābdajñāne vyabhicāriṇīti*, in Gaṅgeśa (1901: 557-8).

The 'limitlessness' *ānantya* objection states that the meaning of a common noun like "cow" cannot consist entirely in its being associated with individual cows, because the number of cows is 'limitless' or indefinitely large. The intuition behind this argument seems to be that the Vyāḍīya model fails correctly to represent our actual linguistic competence. The competence in question is the ability of someone who understands the word-type "cow" to understand any token utterance of it. Vyāḍi's model represents the state of understanding an uttered word t as knowing a discrete item of information, namely that t is a tag for a particular object x. Since there are arbitrarily many possible referents of token utterances of the word "cow", it seems that our linguistic competence is represented by this model as possession of arbitrarily many discrete items of information, or by an arbitrarily long conjunction of such items. The meaning of the word will then be unknowable to any person with finite intellectual capacities. This contradicts a plausible constraint on theories of meaning, that meaning ascriptions should be knowable by the members of the linguistic community whose language they describe.

The second argument, 'aberrancy' or *vyabhicāra*, anticipates a possible reply to the first. Let it be conceded that the competent user does not possess arbitrarily many items of information of the form "t is a tag for x". The new suggestion is that possession of a finite collection of such items is sufficient for general competence, that is, for the ability to understand a token utterance even when it are not part of this finite corpus. The objection to this proposal is that the hearer's ability to understand sentences containing tokens of the nominal outside the base set becomes a mere "aberration". On the current model, in which each token utterance of a nominal is like a discrete proper name, there should be a distinct semantic rule for every such token. Thus, even if I know that "$tree_1$" refers to $tree_1$, "$tree_2$" to $tree_2$ and "$tree_3$ to $tree_3$, I am in no position to understand any *new* utterance "$tree_4$ is F". So the Vyāḍīya model fails to represent hearers' actual linguistic competence by the knowledge to which it ascribes them. This runs up against a second constraint on theories of meaning, that meaning ascriptions should be something

the knowledge of which is sufficient, even if not necessary, for someone to understand the expressions they govern.

The aberrancy argument seems linked with a problem concerning induction. The Buddhist Kamalaśīla considers the suggestion that, having found that a term like "[the] cow" is used to refer to various cows (i.e. the base corpus), one claims that "the same word is applicable to even unseen things of the same kind". He remarks that

> this is not right. No 'convention' (*samaya*) can obtain [between a word and] the limitless unobserved things which have ceased to be or are yet to appear. For this would involve an unwarranted extension (*atiprasaṅga*) [of our use of the term]. (1968: 343),

and he concludes that people can rightly make conventions only with regards to things present at the time when the convention is made and at the time when the term is used. His point, perhaps, is just that the use of a term to refer to object outside the observed induction domain becomes quite arbitrary. The Vyāḍīya model supplies no rule on the basis of which the extension can be made, and it is problematic how such rule can be given (but see below)[10].

The Vyāḍi theory insists that each token of a nominal is a semantic primitive, for which, in the semantic theory for a language containing that token, one must provide a distinct semantic clause. If "$tree_1$" is a token of the nominal "tree", then there should be a semantic rule < "$tree_1$" refers to object a_1>, and any sentence "$tree_1$ is F" will bet true if and only if a_1 is F. Similarly, if "$tree_2$" another token of the same nominal "tree", then there should be another semantic rule < "$tree_2$" refers to object a_2>, and any sentence "$tree_2$ is F" would be true if and only if a_2 is F. The limitlessness and aberrancy arguments combine to present this account with a dilemma. Either there are infinitely many semantic rules in the semantic theory, one for each possible utterance of the nominal "tree", or there are not. If there are, then the semantic theory fails a constraint mentioned, for example, by Davidson, that if a language is *learnable* it must be finitely

[10]This interpretation of the aberrancy argument is vaguely reminiscent of the rule-following considerations highlighted by Kripke (1982).

axiomatised (Davidson, 1984: 9). A semantic theory with an infinite number of rules may, to be sure, correctly describe the language in question, but it will not be a theory which can be learned, because it cannot be known by any creature with merely finite intellectual resources. Suppose instead we restrict the semantic theory to include only a small number of axioms, axioms for the token utterances "tree_1" to "tree_n" say. We now run into a second constraint on an adequate semantic theory, that it should specify the meaning (or truth-condition) of *every* sentence in the language, including novel or yet-to-be-uttered sentences (c.f. Davidson, 1984: 56). The restricted theory, however, fails to give the meaning (truth-condition) of any sentence "tree_i is F", for i>n. This is the 'aberrancy' between a speaker's knowledge of the semantic rules and her understanding: knowledge of the restricted semantic theory is not sufficient for understanding the language.

The Vyāḍīya model characterises the ability of the hearer to understand any utterance of a nominal expression as analogous to the ability of a person who is able to identify a Picasso, having memorised all Picasso's paintings. The contrast is with someone who likewise has the ability to identify a Picasso, but whose ability to do so is grounded in a general knowledge of Picasso's style. What is clearly needed is a single functional semantic rule, a mapping from utterances to objects. We will see in later sections how to derive just such a rule. The failure of Vyādi's model is due to the fact that it does not discern any common semantic structure between different utterances of the same nominal. This failure shows up in its inability to account for the validity of certain patterns of inference, for example the inference from "tree_1 is F" and "tree_2 is G" to "there is a single sort of thing, some of whose instances are F and some G". Almost the same point was made by Śabara, when he observed that Vyāḍi's Particularism fails to represent the element of commonality in the judgement "This is (one) cow *and* this is (another) cow". For Vyāḍi, the judgement is merely "This is cow_1; this is cow_2", which is of the same form as "This is Śābaleya; this is Bāhuleya". In taking a nominal to be a

radically homonymous expression, the Vyāḍi model misses what different tokens of the same nominal have in common.

Matilal gives an analysis of the arguments which is significantly different from the formulation I have just presented. He explains them as follows:

> Diṅnāga argues that a class name like 'cow' cannot denote or express individual cows or cow-particulars because it seems impossible for a single name 'cow' to express innumerable cow-particulars or individual cows. Diṅnāga calls this the problem of 'innumerableness' (*ānantya*) and notes it as a fault of the 'denotation' theory. The second fault of the 'denotation' theory noted by Diṅnāga is called 'deviation' (*vyabhicāra*). These arguments are based on an implicit premise which we shall now examine. Our learning of a name as expressing something and our use of that name or word to express something must in some sense agree with each other. If the word x is learned as expression for y, then x should be used to express y and y only. .... If cow is thought to be learned as expressing a cow-particular, it should be used to express the same particular all the time, because otherwise we will commit the fallacy of 'deviation'. In other words, the situation would be like this: we learn the word x as expressing or meaning y and we use x to express z not y[11].

I believe that it is important here that Matilal is following the Buddhist Diṅnāga, for it seems that the Buddhists and the Naiyāyikas interpret the arguments in different ways. Both agree that the premise of the argument is the Vyāḍi theory of meaning for referring expressions, and its conclusion is that generic nominals (*jātiśabda*) do not refer. Both, moreover, consider the argument to be valid. The Buddhist now accepts the Vyāḍi model as a correct analysis of the meaning of singular terms, and then uses the argument to infer straightforwardly that nominals are not referring expressions. Their alternative theory of meaning, the so-called 'exclusion' (*apoha*) theory, is a non-referential theory of meaning for such expressions[12]. The Nyāya, however, maintain that nominals *are* singular terms. They therefore use the arguments in their contraposed form, and take

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[11](1971: 42-3). Diṅnāga's much-quoted verse, "a generic nominal (*jāti-śabda*) does not denote particulars because of limitlessness and aberrancy ..." (*Pramāṇasamuccaya* 5:2), was discussed at length by Śāntarakśita and Kamalaśīla. See Hayes (1988: 255-7).

[12]The *apoha* theory has been discussed by many authors. See especially the articles in Matilal and Evans (1986), Matilal (1986: 396 - 404), Hayes (1988) and Siderits (1990).

them to show that the Vyāḍīya model is false. In neither case is the "implicit premise" to which Matilal refers a hidden premise on which the soundness of the argument depends; it is at best something which entails the argument's explicit premise. So showing that the implicit premise is false would neither discredit the argument, nor invalidate the Nyāya strategy. This is significant, for the implicit premise is implausible, as I shall now show.

Matilal's "implicit premise" is that "if the word x is learned as expressing y, then x should be used to express y and y only". Putting this in terms of the hearer's capacities, it states that the competent hearer knows an object y to be the referent of x only if s/he has learned that x is a term for y. This may be quite a plausible principle for proper names, for I cannot correctly use the name "Diṅnāga" to refer to anyone except Diṅnāga. It seems quite false for other kinds of referring expression, such as indexicals - I do not use the indexical "here" only to refer to the places where I was first taught the word, nor the word "you" only to refer to the person who taught me. Anyone who accepts the principle would have to deny that these terms are referring expressions. What seems to be going on is this. According to Vyāḍi's theory, it is necessary, in order to understand an utterance of a referring expression, that one knows which object it refers to. This does not yet commit one to any particular doctrine about *what it is* to know which object is the referent. The Buddhist, however, takes the Vyāḍi model to be commitment to a stronger doctrine, namely, that to understand a referring expression, one must be directly 'acquainted' with the referent. It is this stronger doctrine which grounds the 'implicit premise' isolated by Matilal. The claim now is that I cannot use a term to refer to an object unless I am, or have been, acquainted with that object, and have learned to associate that object with that term. Lying behind this interpretation was, of course, the 'flux' doctrine, the Buddhist commitment to an ontology of 'self-characterised' unique particulars or *svalakṣaṇas*, which became for them the immediate objects of experience (c.f. pp. 23 - 24).

To summarise, the Buddhists place more emphasis on language acquisition problems, the Naiyāyikas on the relation between understanding and use. Both agree on

one thing. The limitlessness and aberrancy arguments emphasise a central problem for any theory of meaning, to show how, if at all, general linguistic competence is related to the possession of a finite body of knowledge.

We have seen that the Vyāḍi theory fails to describe the semantics of generic nominal expressions. Before continuing our examination of this class of noun, it is worth pausing to see whether Vyāḍi's theory might be held to give a plausible account of the semantics of proper names.

1.3 The Application to Proper Names

If Vyāḍi's idea, that the meaning of a nominal is just the particular entity for which it stands, failed to give a plausible account of the semantics of generic nominals like "(the) tree", because the existence of a plurality of possible referents leads to the problem of radical homonymy, it might nevertheless seem that his theory has an application in the case of proper names. A proper name, what was called in the Sanskrit literature an 'arbitrary word' (*yadṛcchā-śabda*), has at most one referent. In other words, it is a non-indexical expression, a term whose reference does not vary from use to use. On the face of it, there seems no longer any room for the limitlessness and aberrancy arguments to get a grip. Indeed, the alternative theory, which is to take a nominal to be an expression standing for a property/class, does not appear to be available as a theory of proper names. This is because proper names do not validate the inference based on the 'pluralisation' rule P1.2.58, since the pluralisation of, for example, "Ḍittha is an elephant" to derive "All Ḍitthas are elephants" is not obviously permissible. Another reason is given by the Naiyāyika Jayanta (c.850 C.E.): if "Ḍittha" is a name for Ḍitthahood, then it becomes synonymous with another name, "Ḍitthahood". Jayanta, indeed, explicitly adopted a Vyāḍīya 'realist' theory for the meaning of ordinary proper names, which he called 'substance words' (*dravya-śabda*):

> Simply a particular is 'meant' (*ucyate*) by a word in whose referents there is no common property. Thus in the case of a word like "Ḍittha", understood to be a proper name, the

> 'meaning' is a particular, since we cannot speak of a universal [Ḍitthahood]. We therefore call such a word a substance-word. [13].

In the later Nyāya, there was considerable interest in this theory. Udayana, Vardhamāna and Śaṃkara Miśra all recognise the existence of names which refer *directly* (*śṛṅgagrāhikayā* - lit. "grasps by the horns" its referent). They point out, as Jayanta did, that there is no descriptive feature, semantically tied to the term, on the basis of which someone who understands the term discriminates its referent. The idea, rather, is that understanding consists in a 'bare' association of the term with an object with which we are immediately confronted in some way. Hence the slogan for this theory was: "even from a word, an object can be presented in a pure, unqualified state" (*padād api nirvikalpakam*). Although we do not know who first said this, Gadādhara (1927: 65) claims that it characterised the view of the "older" Naiyāyikas. One main question, of course, is just what is it to be 'purely presented' with an object? Russell's idea of an acquaintance relation between thinker and object was so rigid that only sense-data and perhaps universals could be named, but recent work in the Russellian tradition has gone some way to replacing the notion of acquaintance with a generalised notion of an 'epistemic causal link', obtaining between persons and medium-sized material objects. Spelling out the notion of an epistemic link is, of course, very problematic (c.f for example, Evans use of the idea of an informational transaction), but perhaps not at this stage necessary, for the general outline of the theory is clear enough. If "n" is a proper name, the Vyāḍi-Jayanta theory states that in order to understand "n", it is sufficient to know of some object x that x is its referent, where 'knowledge of' an object is a state of pure, unqualified presentation.

It was, I believe, Bhartṛhari (c. 500 C.E.) who first set down the classic critique of this doctrine. I quote from the *Mahābhāṣyadīpikā*:

[13] *yeṣām artheṣu sāmānyaṃ na sambhavati taiḥ punaḥ ucyate kevalā vyaktir ... evaṃ ḍitthādiśabdānāṃ saṃjñātvaviditātmanām abhidheyasya sāmānyaśūnyatvād vyaktivācitā ata eva hi dravyaśabda ity ucyate*, (Jayanta, 1936: 298).

Even in the case of [the person] Ḍittha, he [silicet Ḍittha] 'proceeds/ continues' (*bhavati*) from his origin to his death, [and we say] "This is Ḍittha, this [again] is Ḍittha". It is the identity in childhood, early youth, maturity, and old age which is [the basis of] the common judgement (*sampratyaya*) "This [is Ḍittha, this again is Ḍittha]", [and] the [common] 'form' (*ākṛti*) is the meaning of the word ["Ḍittha"]. Even for those who are uneducated, there is a common judgement "This is Ḍittha" [when a picture of Ḍittha] is drawn. Therefore, there is an [element of] generality here too[14].

Bhartṛhari is not here questioning the existence of states of 'pure' or 'construction-free' awareness of objects, but is denying rather that such states can supply a sufficient condition on understanding proper names. For one who has mastered the use of a proper name, or at least a proper name for an enduring entity, must have a conception of what it is to encounter the same object at different times, and hence be able to judge "this (currently perceived thing) is the same as that (thing previously encountered)". In mentioning the various states of the person Ḍittha- childhood, early youth, maturity, and old age - what Bhartṛhari clearly implies is that one could have a pure awareness of Ḍittha as a child without having the ability to recognise Ḍittha again later. What is involved in having this ability is knowledge of the 'form' (*ākṛti*) of Ḍittha, in other words, Ḍitthahood, and it is this 'form', not the object, which for Bhartṛhari is the meaning of the name.

There is a striking similarity between this argument and Frege's critique of the Millian theory of proper names, the doctrine that names are merely labels attached to objects. Frege argued that the sense of a proper name is partly constituted by an associated 'criterion of identity' for the object to which it refers, for, as Dummett puts it, "merely to know that a name has as its referent an object with which we are confronted, or which is presented to us in some way, at a particular time is not yet to know, in Frege's terminology, 'how to recognise the object as the same again', that is, how to

[14] *ḍitthe' pi yadutpattiprabhṛtyāvināśāt eva tad bhavaty ayaṃ ḍitthoyaṃ ḍittha iti. bālyakaumārayauvanasthāvireṣv abhinnaḥ sa evāyam iti sampratyayaḥ sā ākṛtiḥ śabdavācyā. unmugdhe' pi ca sampratyayo bhavati ḍitthoyam likhyata iti. tasmāt sāmānyam atrāpy asti.* (Bhartṛhari, 1970: 18).

determine, when we are later confronted with an object or one is presented to us, whether or not it should be taken to be the same object" (Dummett 1981: 545). Where Frege differs from Bhartṛhari is in his further claim that grasping the 'criterion of identity' associated with a proper name involves knowing a *sortal* concept, the concept of a person in the case of names like Ḍittha: to judge that this is Ḍittha and this again is Ḍittha is to judge that this is the same *person* as that. Because of this further claim, Dummett is able to reprimand Mill's theory of proper names for presupposing that the world comes to us already sliced up into discrete objects: the correct view, rather, is of reality as "an amorphous lump", of which "the proper names we use, and the corresponding sortal terms, determine principles whereby the slicing up is to be effected" (ibid. 179). It is not that Bhartṛhari would necessarily be hostile to this conception, for he notoriously defined a substance as that with reference to which a pronoun like "this" or "that" is used[15]. But in saying that the meaning of a proper name is a particularised concept like Ḍitthahood, which in turn is the 'criterion of identity' associated with that name, he overlooks the fact that different proper names can have different senses but nevertheless be associated with the same criterion of identity. The criterion of identity for every personal proper names is that of a person, but in order to understand any one personal proper name, I must also know to which person it refers. And while it is, of course true that the knowledge of Ḍitthahood will be sufficient to distinguish Ḍittha from all other objects, Bhartṛhari's proposal fails to display what the meanings of the proper names "Ḍittha" and "Yadittha" have in common, namely that they are both names of persons.

The Buddhist Kamalaśīla puts forward a different version of the argument. He is commenting on a passage in the *Pramāṇasamuccaya*, where Diṅnāga somewhat cryptically remarks that "[conceptual construction is] the association of name, genus, etc. (*nāmajātyādiyojanā*)". Diṅnāga adds that "in the case of 'arbitrary' names (*yadṛcchā-*

[15]For a discussion of Bhartṛhari's definition of a substance, and its implications for ontology, see Matilal (1971: chp. 3.5), Matilal (1985: 381-2) and Deshpande (1992: 33-4).

śabda), a thing distinguished by a name is expressed by a word [such as] "Ḍittha". In the case of genus-words (*jāti-śabda*), a thing distinguished by a genus is expressed by a word [such as] "cow", [and so on]" (Hattori, 1968: 25). Kamalaśīla claims that we should not take the phrase "the association of name, genus, etc." straightforwardly, as specifying a string of different ways to distinguish objects. We should read it rather as: the association of name [with thing] by means of genus etc. (*nāmnaḥ jātyādibhiḥ yojanā*). The picture, then, is of words 'expressing' or applying to objects by virtue of a logically prior association between the word and a general feature. What now becomes of proper names? Kamalaśīla says this:

> Words like "Ḍittha" are known as 'arbitrary names'. They too take as [their] 'meaning' (*abhideya*) a universal, [one] which inheres in entities which are restricted by boundaries of temporal duration. [This is because] it is impossible for proper names to convey an object which is divided into different moments without any common feature, whilst continuing to follow [the object] from birth to the moment of death. Otherwise, when used to denote the portion of an object as delimited by the state of childhood, how could [proper names] then denote the object having as its condition the state of old age? Even in the view that [a single enduring object undergoes] transformations, the object at a certain state, with which the relation of denotation is admitted to obtain, could go to another state, and that object is not denoted by the word. Just as the word "milk" (*kṣīra*), whose meaning is fixed with reference to [fresh] milk (*payas*), does not apply to coagulated milk (*dadhi*), so too [a personal proper name] does not apply to other states of the 'body/person' (*śarīra*) [than the one with respect to which its meaning was fixed]. So [even for proper names] a universal has to be admitted (*Pañjikā* under TS 1226, Śāntarakṣita 1968: 453).

Kamalaśīla here describes the situation from the point of view of the Buddhist, who considers ordinary material objects to be 'perduring' entities, that is, entities comprised of a series of fleeting temporal stages, but he suggests that the argument can be extended to suit even those who take objects to endure through time. It does make some difference, however, to our understanding of the role of the feature Ḍitthahood in the semantics of "Ḍittha", how we stand with respect to this doctrine. Taking Ḍittha to be an enduring object, present at different times, Kamalaśīla's argument complements that of

Bhartṛhari. If words like "Ḍittha" were, so to speak, logically proper names, they would be tagged to an object as presented at the time the word was first learned, and could not be used to refer to the same object at different times if its appearance had changed. The example Kamalaśīla gives to illustrate his point is very interesting. The word "milk" is what is sometimes called a 'phased-sortal' term: it applies to a sample of milk when it is fresh, but not when it has coagulated, even though it is the same entity throughout. What Kamalaśīla seems to be saying is that if Vyāḍi's theory were true, then it would at best associate a proper name with phased sortal as its criterion of identity. If the name "Ḍittha" is tagged to the boy Ḍittha, it might be able to be used to refer to Ḍittha while he is still in the stage of boyhood, as long, that is, as he has not changed significantly from the way he was when initially presented, but could not be used to refer to him when he ceases to be a boy by reaching maturity. But, and this is the point of Kamalaśīla's argument, this picture is quite wrong. A proper name can be used to refer to an object at any stage in its life - the criterion of identity associated with a name is not phased but permanent.

Suppose instead, with the Buddhist, that material objects are temporally composite. There is no enduring entity Ḍittha, but only a series of temporally indexed entities, $Ḍittha_{t1}$, $Ḍittha_{t2}$, $Ḍittha_{t3}$, etc. A natural supposition then is that each utterance of the term "Ḍittha" refers to the entity at the time of utterance: thus "Ḍittha", uttered at t_1 refers to $Ḍittha_{t1}$, etc. (c.f. Matilal's 'implicit premise'). The argument against the Vyāḍīya theory of proper names now reduces to the argument already given against the application of this theory to generic nominals, for the term "Ḍittha" becomes indeed a generic term. Since there are an arbitrarily large number of Ḍittha-stages, a semantic theory which assigns to utterances of "Ḍittha" clauses of the form <"$Ḍittha_{ti}$" refers to $Ḍittha_{ti}$ > is either unlearnable or incomplete. The theory is in any case suspect, for it seems to assign the wrong truth-conditions to past-tense sentences involving "Ḍittha". Thus, the sentence "Ḍittha was here yesterday", uttered at time t_1, is according to the

current proposal, true iff Ḍittha$_{t1}$ is here at time $t_2 < t_1$. What we want, of course, is for the sentence to be true iff Ḍittha$_{t2}$ is here at time t_2.

Kamalaśīla concludes that the 'meaning' of the proper name is the feature Ḍitthahood, a feature which inheres in each of the temporal stages that comprise Ḍittha. The role of the feature Ḍitthahood is not here a 'criterion of identity', as it was in Bhartṛhari's formulation, for there is no longer any question of an identity through time of a single object. Its function now is to be, as Hattori puts it, the "generalisation of the innumerable moments that constitute the series of the individual Ḍittha" (1968: 84), or, in other words, the criterion of application for the general term "Ḍittha". Without wishing to go too deeply into the Buddhist theory of meaning, the rough picture now is of proper names as disguised predicate expressions, which apply to or are 'true of' a certain class of temporally punctile entities. According to this picture, a sentence like "Ḍittha was here yesterday" is true iff there is an object x and time $t_2 < t_1$, such that x is (a stage of) Ḍittha and x is here at t_2.

To summarise the discussion so far. The Vyāḍi model of the meaning of ordinary proper names like "Ḍittha" was criticised on the ground that anyone who has mastered the term "Ḍittha" has the capacity to make judgements of the form "Here is Ḍittha, and here again is Ḍittha". This is held to show that the meaning of "Ḍittha" cannot consist entirely in a 'bare' association with its referent; rather, the name is associated with a property Ḍitthahood. On one interpretation, Ḍitthahood is what might be called an 'individual sortal', that is, a uniquely instanced property. Someone who knows this property, or possesses the concept of what it is to be Ḍittha, is able, not only to discriminate Ḍittha from other objects, but to recognise Ḍittha at different times, to judge, in other words, "This is the same Ḍittha as that". A second interpretation sees Ḍitthahood as a multiply-instanced universal feature, that which all the different temporal parts constituting the persisting entity Ḍittha have in common. It is, so to speak the 'particularised genus' to which all the moments of Ḍittha belong. Although there is now

no question of an identity judgement, what takes its place is the judgement "This object and this object are both members of (the particularised genus) Ḍitthahood"[16].

The argument so far purports to show that proper names for ordinary, middle-sized, changing objects, especially personal proper names, cannot be "Vyāḍīya" or "Millian" names. Even if this argument is sound, however, it does not yet establish that Vyāḍi's model is entirely devoid of application. There is still a possibility of finding names for *temporally homogenous* objects, that is, objects which lack a sequence of changing states. First of all, there might be names for the temporally punctile particulars or *svalaksanas* which constitute the Buddhist ontology. Russell's logically proper names for sense-data would be good examples of such names. Secondly, we might give names to temporally and physically extended, but intrinsically unstructured, entities. The problem of *re-identification* would not arise for such names, for whenever we are confronted with such an object, we are confronted with it in the same way. The notable examples of such names are "space", time" and "*ākāśa*", as they appear in the Vaiśeṣika ontology. We seem to find here residual traces of Vyāḍi's model in the work of some later Naiyāyikas. I will discuss these terms at some length later.

The Buddhists, however, deny that we can name the unique particulars (*svalakṣaṇas*). According to Diṅnāga,

> the object of the sense is the 'form' [*rūpa*, i.e. *svalakṣaṇa*] which is to be cognized [simply] as it is and which is inexpressible (*anirdeśya*)[17].

In the form presented above, the limitlessness and aberrancy arguments clearly do not entail this conclusion. Vyāḍi's theory was found to be incapable of representing the fact that someone who understands a proper name is able to re-identify its referent in spite of its changing states. A unique particular x, however, does not have a sequence of changing phases, and the hypothetical name for unique particular x could be used to

[16]These two interpretations are carefully distinguished in the *Kāvyaprakāśa*: *bālavṛddhaśukādyudīriteṣu ḍitthādiśabdeṣu ca, pratikṣaṇaṃ bhidyamāneṣu ḍitthādyartheṣu vā ḍitthatvādyastīti*. (Mammaṭa 1917: 37).

[17]Hattori's translation (1968: .27). The term 'form' is used by Hattori as a translation of *rūpa* or sense-datum, and has nothing to do with the notion of 'form' (*ākṛti*) as understood by the grammarians.

designate x and x only. We need a new argument against the nameability of unique particulars, and Śāntarakṣita tries to supply one:

> A 'unique particular' (*svalakṣaṇa*) cannot be denoted by words, because of the absence of 'pervasion' (*vyāpti*) [of the unique particular] between the time of convention[-formation] and the time of usage [18].

As Matilal, notes, the basis of this claim is that reference "presupposes persistence of the datum during the time between when the name is given and understood and when it is used" (1986: 367). It is an argument against there being *historical* names, names for entities which no longer exist. Since the Buddhist particulars are momentary, the hypothetical name of such a particular would be a historical name, for the datum to which the name was tagged has vanished. Recall, however, that Vyāḍi's realist model takes understanding a name to consist in knowing, of some object with which one is directly acquainted or has an unstructured (*nirvikalpaka*) awareness, that it is the referent of the name. The idea behind Śāntarakṣita's argument seems to be that the relation of acquaintance or unstructured awareness can obtain only between a person and a currently existing object, and, moreover, that it is not sufficient to understand a name that one has been acquainted with its referent at some previous time: it is necessary, to understand a name at time t, that one is acquainted with its referent at t. If both these claims are true, then the only possible Vyāḍīya names are names of objects contemporaneous with the language-users.

The argument is sound only if it is true that the relation of acquaintance or unstructured awareness can obtain only between a person and a *currently existing* object. This will depend on exactly what is held to be involved in having such modes of awareness. Russell, for example, famously claimed that memory is itself a mode of acquaintance, that "we are immediately aware of what we remember, in spite of the fact that it appears as past" (1912: .26). And more recent literature points to the existence of

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[18]Śāntarakṣita (1968: 341) See also Matilal (1986: 367), Hattori (1968: 27, 67) and Hayes (1988: 256).

'non-conceptual memory states'[19]. The possibility of qualification-free memory states seems indeed to have been a source of great controversy among later Naiyāyikas[20], presumably because on this question hinges the feasibility of a direct or realist theory of meaning both for historical names and for other non-demonstrative proper names. From the point of view of the Buddhist, however, memory cannot be a structureless state, since structureless states are for them necessarily perceptual (c.f. '*pratyakṣa*'). In so rejecting the possibility of 'logically' proper names, they are led to a revisionist stance about grammatical singular terms more radical than that of Russell, but perhaps comparable with Quine.

Dummett characterises Mill's view as one in which "reference is an ingredient in meaning", and notes that Frege solved some of the problems which it faces by denying that this is so. In the Indian tradition, there are two broad responses (logically, though not chronologically) to the array of arguments against the Vyāḍi theory of meaning, both resting in some sense on a separation of the notion of 'meaning' from that of 'reference'. The Mīmāṃsakas continued to endorse the 'realist' criterion of synonymy, that two words are synonymous if and only if they have the same semantic value, but argued that the semantic value of a nominal expression should be a universal, not a particular. Thus the meaning of a nominal is context-free, and its use to refer to individuals in a context is a pragmatic conversational phenomenon. The Nyāya authors develop instead a theory of meaning which analyses nominals as being, at least in some uses, singular terms, but rejects the old criterion of synonymy for such terms. It is to these responses that I now turn.

1.4 Beyond Vyāḍi: Contextuality and Meaning Invariance

The failure of Vyāḍi's theory was due, in the first instance, to the fact that it analysed each token utterance of a generic nominal as a semantic primitive; consequently, a

[19] E.g. Evans (1982: 239).
[20] See Gadādhara's *Nirvikalpakasmaraṇavāda* (1933).

semantic theory for a language containing that nominal must either lay down stipulations for infinitely many word-object pairings, or else fail to give the meaning of an indefinite range of novel sentences embedding the word. A symptom of this failure was the theory's inability to reveal as valid certain patterns of inference, for example, from "$tree_1$ is F" and "$tree_2$ is G" to "$tree_1$ is the same species as $tree_2$", or from "$tree_1$ is F" and "All trees are G" to "$Tree_1$ is G". This latter inference would, on Vyāḍi's proposal, be an instance of the invalid inference schema: "a is F"; "All Hs are G"; therefore "a is G". What this shows is that in analysing each occurrence of the generic nominal "tree" as if it were an individual constant, the Vyāḍi model gets the *logical form* of sentences like "$tree_1$ is F" wrong, and it does this because it fails to display the common semantic structure between "$tree_1$ is F" and "$tree_2$ is F", namely that "$tree_1$" and "$tree_2$" are both names of *trees*. This diagnosis itself suggests a solution. The problem would be solved if we could construct a single linguistic rule for a generic nominal which generated arbitrarily many token-object pairings. In other words, we would like a linguistic rule whose character is functional. Such a function would necessarily have to find common semantic structure between different tokens of the same type, if it is not to collapse into a mere listing of token-object pairs. In this section, I will look at the ways philosophers in the post-Vyāḍi period developed new semantic theories based on just such rules.

It was to the grammarian Kātyāyana that the early authors looked for a further insight into the character such a rule might have. In his fifth *vārtikka* or aphorism under Pāṇini-sūtra 5.1.119, Kātyāyana suggests that each generic nominal is associated with a 'quality' (*guṇa*), and it is due to this association that it refers to particular substances. He says that

> The 'attachment' (*niveśa*) of a [nominal] word to a [particular] substance is due to the presence (*bhāva*) of such a 'quality' (*guṇa*) as is 'expressed' (*abhi* +√*dhā*) by [the addition to the nominal base of the abstraction suffix] *-tva* or *-tal*.[21]

[21] *yasya guṇasya bhāvād dravye śabda-niveśas tadabhidhāne tvatalau*. (Patañjali, 1961: 83). Pāṇini-sūtra 5.1.119, which prescribes the use of the abstraction suffices, states that *-tva* and *-tal* designate the 'essence' or 'nature' (*bhāva*) of a thing. As Kaiyaṭa points out, however, the term '*bhāva*' in

Kaiyaṭa notes that what Kātyāyana means by 'attachment' is the application or use (*pravṛtti*) of a nominal to refer to a particular. The quality of which Kātyāyana speaks is the 'basis' or 'ground' (*pravṛtti-nimitta*) for this use: it is at least partly because of an object's possession of this quality that the nominal refers to it. The aphorism, moreover, specifies the meaning of the abstraction suffices: if the nominal is "tree", then the abstract noun "treehood" refers to a certain quality or property, T say, and utterances of "tree" are correctly used to refer to objects because those objects possess T.

All this needs a great deal of unpacking, especially the notion of a 'ground' or 'basis' for the use of a word. But at least in outline we clearly have the beginnings of a solution to the problems which afflicted Vyāḍi's theory. For it is no longer the case that each utterance of the same nominal is being analysed as a distinct semantic primitive; instead, there is a single feature associated with the noun (type), an invariant element in its meaning, in virtue of which any token utterance is assigned a reference. It is because of the existence of a constant meaning element, which the later Naiyāyikas call the 'consecutive character' (*anugama*) of the word, that ordinary nominals are not radically homonymous expressions.

I will not speculate any further about Kātyāyana's own intentions behind his aphorism about names. This is not just because to do so would be impossible on the basis of what he actually said, but more importantly because such speculation would miss what is most significant about the aphorism: that while catching a fundamental insight about language, it is open to many different and competing interpretations. It is, so to speak, an obligation on any theorist about language, but how this obligation is discharged will depend on larger issues about the nature and purpose of a theory of meaning. The interpretation of Kātyāyana's *vārtikka* became, in the later classical phase of Indian philosophy (i.e. the fifth to seventh centuries C.E.), a major question, and the

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Kātyāyana's *vārtikka* does not mean 'essence' but 'presence' (*vidyamānatva*). The *vārtikka* should not be seen as commiting Kātyāyana to a strong essentialism, in which anything capable of being referred to by a nominal expression has an essential attribute.

answer given by an author or system informed their general philosophical outlook on matters connected with language. One strand of this debate has been studied in great depth by R. Herzberger. The central thesis of her recent book, *Bhartṛhari and the Buddhists*, is that "Bhartṛhari argued that names are given to spatio-temporal individuals not directly on the basis of a quality, but indirectly on the basis of a universal which belongs in words (*śabdajāti*)", while "Dignāga claimed...that names convey their bearers directly on the basis of that quality which does not 'exceed over' the bearer" (1986: xviii). The large questions here are, not only whether the 'basis' mediates the relation between words and objects, as Frege, according to some, would have it, but also whether the linguistic rules are objective or subjective, that is, whether our use of terms is 'grounded' in real properties of objects or merely in mental fabrications. Although her reconstruction of Diṅnāga's views is rather controversial (see Matilal's preface), she demonstrates that what underpinned the debate between him and Bhartṛhari are rival interpretations of Kātyāyana's aphorism.

My aim here is to set out the philosophical context in which the *Śaktivāda* was written, and for that purpose it is not the rival interpretations of Bhartṛhari and Diṅnāga, but of three other parties, which are significant. These parties are, first, those grammarians who defended a modified form of Vyāḍi's theory; second, the Mīmāṃsakas Śabara and Kumārila; and third, the early Naiyāyikas, Uddyotakara and Jayanta. The three groups were divided, in the first instance, over the question of what 'meaning-relatum' (*padārtha*) a nominal should be regarded as having: should it be a particular (*kevala-vyakti*), a universal (*jātimātra*), or, intriguingly, a composite of the two (*jātiviśiṣṭavyakti*)[22]. This narrow dispute about semantic value was tied up with much larger questions about the relations between a cluster of concepts, especially the notions of truth, reference, meaning, understanding or interpretation, and action. One of the most important points of controversy is whether a theory of meaning is descriptive or

[22]Nāgeśa notes that each of these views is consistent with some contrual of Kātyāyana's *vārtikka*. See (Patañjali 1961: 83).

explanatory. Is the task of a theory of meaning the description of an actual linguistic practice, in which linguistic rules are empirical generalisations of observed usage? A positive answer takes the notion of a "ground for application" to involve nothing more than the idea that speakers' use of the term "tree" is correctly described by the rule <The word "tree" refers only to trees>. This seems to be the view of the Grammarians. The Naiyāyikas, however, link the theory of meaning with a psychological explanation of our linguistic abilities. They argue that our use of the language is not simply in accordance with the linguistic rules, but is 'guided' or 'regulated' by our knowledge of those rules. The notion of a 'ground' in the phrase 'ground for application' acquires for them both causal and explanatory overtones: our use of the word "tree" to refer to trees, and only to trees, is explained by the idea that we are following a linguistic rule. Let me begin by developing further the grammarian interpretation.

Semantic Particularism is the view that the semantic value of a nominal like "tree", at least as it occurs in sentences like "Look at (the/that) tree", is a particular object. Such nominals must be 'token-reflexive', that is, their reference will vary according to context in which they are used. The same noun-phrase "tree" can be used to refer to different trees on different occasions. We might, adapting a phrase from Quine, call these expressions the "definite singular terms". Now, one way to interpret Kātyāyana's slogan that nominals apply to particulars due to the presence of a feature, is to read it as giving a linguistic rule or semantic axiom, specifying a constraint on the assignment of objects to utterance-tokens of the word. The rule for "tree" has the form: each token of the nominal type "tree" refers to a tree. Slightly more formally, we might say that

> for all objects x, and all tokens "tree$_i$" of the nominal type "tree", "tree$_i$" refers to x only if x possesses the feature tree-hood (i.e. is a tree).

The early grammarian Particularists used the technical term "indicator" (*upalakṣaṇa*) to describe the role of the feature treehood in this theory. By this term, they meant to emphasise that, although the feature is mentioned in the linguistic rule, it is not a semantic value (*vācya*) of the noun. In other words, the truth or falsity of a statement like

"(The/that) tree is tall" depends only on whether a certain object a is tall or not, where a is the object referred to by the utterance of "(the/that) tree". The feature treehood does not enter the content of the sentence; its function is simply to 'help out' in fixing the reference of any utterance of the nominal, by giving a single linguistic rule. The new semantic clause is immune to the criticisms levelled against Vyāḍi's theory: describing this view, the Mīmāṃsaka Kumārila notes that

> alhough there is an infinite number of individual existents, it is easy to establish the relationship of a word [to an infinite number of entities] by selecting a single marking property. [The word whose relation is ascertained in this manner] will not deviate (trans. Deshpande, 1990: 123).

Later on, the role of the property was said to be that of delimiting the 'sphere of reference' of the term (c.f. *śakyatāvacchedaka*). It marks the boundary between two classes, the class of objects to which the term can be used to refer, and the class to which it cannot. Let us note, however, that the linguistic rule given for the noun "tree" does not *completely* specify a mapping from utterances to objects, as for example, the rule for the first-person pronoun <"I" refers to the utterer> does. The rule for "tree", that an utterance of this nominal refers to an object only if that object is a tree, gives a necessary, but not a sufficient condition, for something to be the referent of the token utterance[23]. What this shows is that the use of generic nominals like "tree" as singular terms is essentially context-dependent: the reference of an utterance of "tree" is determined, in any given context, not just by the semantic rule, but by a host of loosely pragmatic factors such as acts of pointing, factors which are sufficient, when there is more than one tree in the context, to make just one 'salient' for the audience. In what follows, I will add the determiner "the" or "that" to the nominals in order to emphasise this indexical element in the analysis.

Vyāḍi's theory of meaning combined the claim that the reference or semantic value of a common noun is an individual (Semantic Particularism, *vyaktiśaktivāda*), with

[23]This point is overlooked by Deshpande in his analysis of Kātyāyana's aphorism, (1992: 56-60).

the realist theory of meaning, that an expression is ambiguous iff it has a plurality of semantic values (*śakyabheda eva śakter bhedaḥ*), and this combination led directly to the difficulties dubbed "limitlessness" (*ānantya*) and "aberrancy" (*vyabhicāra*). A common noun becomes a radically homonymous expression. The grammarians whose view we are now considering continue to endorse Particularism, but offer a new criterion of synonymy and homonymy. Two words are synonymous if and only if they have the same 'basis of application' or reference-delimitor (*pravṛtti-nimitta, śakyatāvacchedaka*), and a word is homonymous iff it has more than one basis or delimitor[24]. This view of the relation between meaning and reference is much the same as that held by Strawson, when he remarks in *Introduction to Logical Theory* that

> For a singular referring expression to have a meaning, it suffices that it should be possible in suitable circumstances to use it to refer to some one thing, person, place, &c. Its meaning is the set of linguistic conventions governing its correct use so to refer. For the great majority of referring expressions, these conventions are such that a given expression may be used on different occasions to refer to different individual things, persons, places, &c.(Strawson, 1952: 188-9).

In his famous paper, "On Referring", he adds that "[expressions capable of having a referring use] differ [from one another] in the degree of 'descriptive meaning' they possess: by 'descriptive meaning' I intend the conventional limitation to things of a certain general kind, or possessing certain general characteristics" (1950: 21). This idea of the "conventional limitation to things of a certain general kind, or possessing certain general characteristics" seems to be very much what the grammarians had in mind when, interpreting Kātyāyana's aphorism, they say that a property or feature is an 'indicator' of reference.

The grammarian Patañjali asked whether the 'meaning' (*artha*) of a nominal is a particular or a universal, and pointed out that there were valid grammatical rules whose validity necessitated that both answers be given. In particular, the 'pluralisation' rule

[24] *śakyatāvacchedakatābhedena śaktibhedaḥ*. See e.g. Gadādhara (1927: 85).

P1.2.58, which permits inferences from "(The) whale is a mammal" to "(All) whales are mammals", shows that, at least when used in certain contexts, the semantic value of a generic nominal is a universal or class. Now the Mīmāṃsaka hermeneuticists attached great significance to this use of nominals, for they wanted to explain the universal application of Vedic injunctions. As Matilal notes, "Vājapyāyana [a grammarian to whom Patañjali attributes the Universalist theory] was, perhaps, more concerned with law-like statements and the *Mīmāṃsā* formulas of the Scripture. Hence, he stressed the quality aspect (the generic aspect) of meaning, thus creating the philosophical background for the development of the notion of universal" (1971: 107). Apparently, the idea is not that Vedic injunctions are all universally quantified statements, though some are (e.g. "Any cow should not be kicked"). Their law-like status consists instead in that they do not mention any *particular* object. The example given by Śabara under *Mīmāṃsā-sūtra* 1.3.33 ("One should build the falcon-alter") rather confused the point, and Kumārila (1903: 273) therefore offered a more down-to-earth example:

> When no [particular] object is indicated, an order "Bring [a] cow" is an instruction to bring any individual belonging to the species [cowhood]. It is not [an instruction to bring] a specific [cow] nor [to bring] all [cows]. If, however, a [specific] particular is [taken to be] the meaning-relatum (*abhidheya*), then since every [cow] is simultaneously 'meant' (*abhihita*), [the order] would be to bring [all of them] without remainder. Or else, one should bring just that one [particular] which is the meaning-relatum. However, from the fact that [the order commands that] he brings an unspecific [object] belonging to the species, it is ascertained that the meaning-relatum (*padārtha*) is a class/property (*sāmānya*).

Kumārila here clearly takes the logical form of the injunction to be an existential quantification. The point, then, is that the Mīmāṃsā injunctions are quantified constructions, containing no reference to particular objects.

It is not, however, the semantics of nominals in law-like injunctions which divide the Mīmāṃsakas from the Particularists. Both agree that the logical form of such sentences shows that nominals sometimes take a universal or class as their semantic value. The difference only emerges when we consider the semantics of sentences which

purport to be about some definite individual. The Particularist here characteristically claims that nominals are semantically ambiguous, sometimes behaving as logical singular terms and sometimes as quantified noun-phrases. This is also the position of Patañjali. The Mīmāṃsakas, whose theory we are about to examine, reject this ambiguity thesis - they argue instead that even in such cases nominals are quantifier phrases or expressions of generality, and that their 'use' to refer to particulars is a non-semantic feature of the role of nominals in communication.

The Particularist adduces a variety of such linguistic evidence in favour of her contention that the semantic value of a noun sometimes takes as its semantic value an individual (*dravya*, *vyakti*). Gautama lists some of the evidence under *Nyāya-sūtra* 2.2.60. When the noun ('cow') is the direct object of such transitive verbs as brings, gives away, grabs, etc., when it is the subject of such verbs as grows fat, becomes emaciated, or is in apposition with other nouns such as "white", when it restricts a demonstrative or relative pronoun - in all these cases, the sentence seems to be 'about' some definite particular.

The sort of evidence alluded to here concerns the logical form of sentences in which the terms occur. Śabara, while setting out the Particularist viewpoint (which is not, of course, his own view but that of a philosophical opponent, i.e. a *pūrvapakṣa*), observes that there is another kind of evidence bearing on questions of semantic value, based on a link between what someone understands by a sentence and the sorts of *action* they are disposed to perform[25]. His idea is something like this. Consider again the command "Bring cow". If the term "cow" here is construed as a demonstrative expression ("that cow"), a singular term referring to some definite particular, a say, then someone so commanded will be disposed to fetch the cow a and no other thing. If, on the other hand, the term "cow" is construed as a quantified noun-phrase ("a cow"), one would be disposed to fetch any object, provided only that that object is a cow. We

[25]Under *Mīmāṃsā-sūtra* 1.3.30. It seems that the idea is due to Kātyāyana. See P1.2.64, *vārtikka* 47: *codanāsu ca tasya [dravyasya] ārambhaṇāt.*

should note here that the use of a sentence in the imperative mood is quite irrelevant to the point being made. Suppose I am about to lead away a certain cow, and I hear someone utter the assertoric sentence "Cow is mine!". My subsequent actions will depend crucially on whether I take the utterer to be referring to the particular cow I am about to take, or simply asserting that he too has a cow. The general idea here is quite familiar. We explain people's actions by ascribing to them thoughts with certain contents, and we take the sentences they utter or assent to to express those thoughts. If a person's behaviour is directed to a definite, particular cow, and not to any or every cow, we ascribe to him singular thoughts about that cow, and take his utterance of, or assent to an utterance of, the word "cow" to refer to that particular cow. This is roughly what Śabara may have meant when he took the kinds of action people perform to be evidence for the Particularist viewpoint.

In fact, of course, neither Śabara nor his followers, took these kinds of evidence to be conclusive confirmation of Particularism. They explain away the evidence by appealing to a very general distinction between two kinds of referential mechanism, one literal (c.f. *śakti*), the other 'derivative' or 'secondary' (c.f. *ākṣepa, lakṣaṇā*). It becomes possible for them to say that, even though the literal reference of a nominal is always a property or class, it can sometimes be used or interpreted 'derivatively', as referring to a particular object in the conversational context. Such a view is reported by Gautama under *Nyāyasūtra* 2.2.62, where he remarks that words are very often taken to refer "figuratively" (*upacāra*) to objects that are not their literal denotata. For example, the word "staff" in "Give food to the staffs!" (*yastikāṃ bhojaya*!) is understood as referring to the *brahmanas*, because *brahmanas* always carry staffs. There are two criteria permitting a non-literal use or construal of a term: the literal reference must not fit in the context (c.f. *anvayānupapatti*), and there must be a 'transferential route' or relation between the literal reference and the derived reference[26]. In the above example, this

[26]The rules of referential transfer have been extensively catalogued by Raja (1963: 229-73).

'route' is the relation of co-presence (*sahacaraṇa*) between the literal referent, the staff, and the 'derived' referent, the *brahmana*.

Derived reference (*lakṣaṇā*), then, is a phenomenon in which a speaker uses a word to make a reference to an object other than the word's literal referent, and she does this by relying on there being a 'transferential route' from the literal referent to the object in question. More importantly, she relies on the fact that the audience knows of this route, realises that she intends to make a derived reference, and construes her remark accordingly. It is a special case of what is sometimes called 'indirect reference', which is such that something is referred to indirectly just in case it is referred to by way of referring to something else· It should be stressed that indirect reference in this sense is not a method of *naming*, as is for example the practice of naming wives after their husbands, or of descendants by means of a patronymic. We are interested, rather, in the phenomenon whereby the conversational context, especially the manifest intentions of the speaker, enable a term to be used to refer to an object other than its literal referent. As Matilal puts it, "the word 'ravens' [in the sentence "Protect the food from the ravens"] means not only ravens but also by extension any birds or beasts that would spoil the food. This is a common presupposition of our general rational behaviour. It is the context which derives this metaphorical meaning from the word 'ravens' here, and I believe no lexicographer would dream of noting this as presumably another normal meaning of the word 'raven'" (1990: 23). What this goes to show is that *lakṣaṇā*, the derivative use of a term to make a reference, is a species, though not the only species, of what is now usually called 'speaker reference' in contrast with 'semantic' or literal' reference, a linguistic mechanism in which the speaker relies on 'conversational maxims' to indicate to her audience a certain object which may not be the literal reference of the term used (c.f. Kripke 1979, Geach 1972: 31).

The Mīmāṃsakas appeal to this distinction to argue that, although the reference of a generic nominal is a property, it can be used derivatively to refer to a particular. The Mīmāṃsā theory is that the semantic value of an ordinary common noun, such as "cow"

is the universal cowhood, but that in contexts such as "Fetch (the) cow" or "(The) cow is standing up", when both speaker and hearer take it that a particular cow is being spoken of, we should interpret it pragmatically, as referring to an individual cow. Vātsāyana remarks that the relation here between the semantic value and the pragmatic value of the word is either co-presence (*sahacaraṇa*) or connection (*yoga*). Gautama's example of the latter is of a case when we use a quality word, such as "black", to refer to something having that quality, perhaps a certain kind of cloth. The transferential route by which a common noun such as "cow" is understood to be referring to an individual cow would thus be the relation substratumhood (*āśrayatā*)[27].

We can now see how the Mīmāṃsakas would understand Kātyāyana's aphorism, that words are used to refer to particulars due to the presence of a property. They take the property, which is the 'ground for application' (*pravṛtti-nimitta*) of the nominal, to be just its semantic value, and the 'use of the term to refer' to particulars to be an act of speaker reference. The aphorism now reads: words indirectly refer to particulars *via* the property which is their literal referent[28]. This is, of course, closely akin to the move typically made, in the modern literature, by those who wish to explain the so-called 'referential uses' of definite descriptions from within a Russellian quantificational theory of description. If there is a difference, it is in motivation. The Mīmāṃsā philosophers were concerned, not so much with problems about reference-failure, as with finding non-contextual, eternal truth-conditions for the Vedic sentences they analysed. It was for them *a priori* that the meaning of Vedic discourse did not depend on contingent circumstances, that it could be discovered without resort to empirical enquiry. As 'purists' about language, they clung to a 'monosemic' criterion of synonymy, a strict one-to-one correspondence between words and 'meanings' (*arthāḥ*): there was then no need to appeal to the context for the purpose of disambiguation. Since,

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[27]For references in the *Mīmāṃsāsūtrabhāṣya*, see Deshpande (1992: 102, n.292; 98, n. 277). Deshpande suggests the view is traceable to another of Kātyāyana's *vārtikkas, vārtikka* 61 under P1.2.64: *adhikaraṇa-gatiḥ sāhacaryāt*.

[28]Compare Śabara: *ākṛti-vacanaḥ śadbas tat-sahacaritāṃ vyaktiṃ lakṣayati*. Quoted by Deshpande (1992: 102).

as we have seen, the only way to defend this criterion was to take the 'meaning' of a noun to be a universal or class, they looked to non-semantic features of the communicative situation to explain the use of nouns to refer to particulars and hence the relation between the Vedic injunctions and the actions to which they led.

This, then, was the philosophical setting in which the early Nyāya authors worked. Two opposing camps, the Grammarian Particularists and the Mīmāṃsā Universalists, locked in a dispute about the correct interpretation of Kātyāyana's aphorism, and engaged in radically divergent philosophical programmes. For the Grammarians, it was for the theoretical description of our empirical linguistic practices that 'grammars' were constructed, and our actual use of nominals was most felicitously described first by postulating an ambiguity in the semantics of nominals, and second by giving functional, context-sensitive linguistic rules. The Mīmāṃsā hermeneuticists sought to preserve the eternality of Vedic discourse by constructing a theory of meaning in which every sentence has context-invariant truth-conditions. When the sentence contained a nominal, it was analysed as involving an 'expression of generality', an existential or universal quantifier; if a particular were intended, the explanation was to be found at the non-semantic level. The early Nyāya authors' response to this situation was not to join one side or the other: regarding both sides of the dispute as extremes, they sought instead a third, more realistic, approach. The last two sections of this introductory chapter are devoted then to Gadādhara's earliest philosophical precursors: Uddyotakara and Jayanta, with their '*tadvat*' theory of meaning; and Udayana's discussion of analysis and definition.

1.5 The Early Nyāya Theory of Meaning

The point of departure for the early Nyāya discussion on semantics is *Nyāyasūtra* 2.2.66. Here, having reviewed and criticised the Particularist and Universalist theories of meaning, Gautama states that the 'meaning' (*artha*) of a word is a particular (*vyakti*); a 'form' (*ākṛti*); and a universal (*jāti*). Mention of a 'form' as distinct from a universal

was apparently for the sake of the uses of a nominal like "cow" to refer to clay or toy cows. Since such uses are tangential to our present discussion, I will ignore this element in the *Nyāyasūtra* definition[29]. According to his commentators, Gautama's intention in listing both the particular and the universal as 'meanings' is not merely that a nominal can take different semantic values, sometimes a particular and sometimes a universal, in different uses. His view, rather, is that the 'meaning-relatum' even of a referential use of a nominal is a *pair* of entities, a particular and a universal (or a triple if we include the 'form').

The early Nyāya philosophers, Uddyotakara (sixth century C.E.) and Jayanta (ninth century C.E.), construct a theory of meaning designed to make sense of this apparently strange claim. The central idea of this new theory is that the 'meaning' of a nominal is the possessor of a property (*tadvān eva padārthaḥ*. Jayanta, 1936: 295). I quote Jayanta:

> The meaning of a word is the possessor of a property (*tadvān*). [An objection is now raised to this]: What is this thing called a "*tadvān*" (lit. that-owner)? "*Tadvān*" literally means "this has that" (*tadasyāsti*), so what is meant is that a particular is the owner of a property. But if it is the particular which is the referent, then the limitlessness and aberrancy faults remain, [especially] since the property is not [considered by you to be] a undesignated indicator (*upalakṣaṇa*). And if both [particular and property] are designated, then the word has an excessive [semantic] burden. [Jayanta replies]: What is meant is this. The 'property-possessor' (*tadvān*) is not a particular individual, such as Śābaleya, which is indicated by the word "this" [in "this has that"], and it is not the collection of all the individual [cows] in the world. It is the substratum of a universal. The aforementioned particular Śābaleya is said to be the '*tadvān*' because it is the substratum of the universal [cowhood], and so neither limitlessness nor aberrancy are relevant [objections]. Nor do we admit that a word designates the qualificand [i.e. the particular] without designating the qualifier [i.e. the property]. Since [someone who

[29]For further discussion of the notion of *ākṛti* in early Nyāya, see Tiwari (1993) and Scharf (1990). The use of "cow" to refer to clay cows is a *systematic*, and hence eliminable, ambiguity. Compare Geach: "a systematic ambiguity, like the way that a common noun can be used to label either a thing of a given kind or a picture of such a kind, or again like the way that a word may be used to refer to that word itself, ... [is] removable by the use of special signs, e.g. the modifying words "picture of a", or quotation marks." (1980: 172). Some later Naiyāyikas took the term '*ākṛti*' to denote the relation (*vaiśiṣṭya*) by which the universal qualifies the particular.

> understands the word] knows a relation [between it] and a property-substratum, [the word] just means (√*vad*) a *tadvān*. So where is the word's excessive [semantic] burden? (1936: 295-6).

In this closely argued passage, Jayanta sets out all the main elements in the *tadvat* doctrine. Let us recall the problem to which this theory is a solution. In treating every token utterance of a nominal as if it were a semantic primitive, Vyāḍi's theory failed to notice a significant level of semantic structure, the common semantic element between any two utterances of the same nominal. Two tokens "$tree_1$" and "$tree_2$" of the same noun-type "tree", and both used demonstratively to refer to the objects $tree_1$ and $tree_2$, were analysed simply as unstructured names. Jayanta now shows us a way to recover the lost structure. An utterance of "tree" should be thought of as having two components, a demonstrative element, expressed by a deictic pronoun "this", and a qualifying, predicative component, expressed by the possessive affix attached to the name of a property, "...has treehood". In other words, the nominal "tree" is analysed as having a 'deep' structure "this, having-treehood" or "this, (which) is-a-tree"[30]. The deictic pronoun ensures that the expression is token-reflexive, different utterances referring to different, demonstratively indicated objects. This is what Jayanta calls the 'qualificand' (*viśeṣya*). However, the predicative component or 'qualifier' (*viśeṣaṇa*), that is, the open sentence "...has treehood", remains constant for any utterance, and this fact, Jayanta suggests, is enough to diffuse the usual arguments against Vyāḍīya Particularism. Furthermore, Nyāya Particularism differs from that of the grammarians in that the feature is semantically significant. The truth-conditions for a sentence of the form "(The/that) F is G" are now to be specified as: "(The/that) F is G" is true if and only if the object demonstrated by "that" is F and G. Jayanta makes the point by saying that the feature is not an 'indicator' (*upalakṣaṇa*) but a 'qualifier' (*viśeṣaṇa*), and is itself designated by the word. This is how the *tadvat* theory makes sense of *Nyāyasūtra* 2.2.6, and, at the same time, actualises Kātyāyana's aphorism in a new way:

[30]The relative pronoun is just a place-holder in the open sentence "...is a tree".

> When we want to express just the located universal without its location, [the abstraction suffixes] *-tva* and *-tal* are used. As [Kātyāyana] said, "*-tva* and *-tal* [are used] to denote that quality due to the presence of which words are attached to substances". This remark, that words are attached due to the presence of a quality, provides support for our view that what is denoted is the *tadvat* (ibid.: 297).

Sanskrit does not use determiners. Nominals, construed as complex indexicals and in English written "the/that F", are in Sanskrit syntactically unstructured units. Since the *tadvat* theory analyses such nominals as having a 'deep structure', in which a deictic pronoun is combined with a predicate, it will be convenient to introduce a notation which displays this structure. I shall write "[that: F]", taking this to be a singular term equivalent to "(the/that) F". Now Jayanta specifies the semantics of "[that: F]" by saying

"[that: F]" means (the) F-possessor.

Such meaning ascriptions are notoriously ambiguous. Suppose I say, '"The woman who discovered radium" means the woman who discovered radium'. In this sentence, the direct object of the verb 'means' can be taken as standing for one of two things. If it stands for a particular person, Marie Curie, then the sentence is true only if 'means' is construed extensionally, as equivalent to 'refers to'. We do often use 'means' in this way. On the other hand, if the direct object is taken to stand for the meaning of the phrase "The woman who discovered radium", which is not Marie Curie, but a function of the meanings of the component words "woman", "radium", etc., then the sentence is true only if the verb 'means' is taken in its usual (intensional) sense. The grammarian and Mīmāṃsā theorists were able to ignore this ambiguity since, as meaning-realists, they took meaning specifications to be extensional statements correlatings words with objects; in other words, to give the meaning was just to give the reference. Jayanta tries to follow the same pattern, but in the *tadvat* theory, overlooking the distinction is a mistake. He clearly cannot take 'property-possessor', the direct object in his meaning specification, as standing for a certain particular, Śābaleya say, for the meaning-clause would then collapse into a Vyāḍi-style clause, stating the reference of a single token of the nominal. So instead he tries to take it in effect to stand for the meaning of the

expression, but then reifies meaning under the influence of the realist theory of meaning, and ends up speaking of the ‘property-possessor’ or *tadvān* as if it were some new kind of entity, a sort of structured composite of a particular and a universal.

In fact, it is a familiar point that we cannot perspicuously give the meaning of many expressions by clauses of the above form. For example, the meaning of conjunction cannot be stated by a schema of the form <“&” means ... >. Rather, we must give its meaning by specifying the truth-conditions of any sentence in which it occurs. Thus: for any pair of sentences “P” and “Q”, “P & Q” is true iff “P” is true and “Q” is true. In the same way, the meaning of “[that: F]” has to be given by stating the truth-condition of sentences embedding it. Thus: for any predicate G, “G[that: F]” is true iff the object denoted by “that” is F, and is G.

The Nyāya theory, like that of the grammarians, is Particularist, analysing nominals as singular referring expressions. This can be seen from the fact that the truth-conditions for sentences containing a nominal depend on the way things are with a certain individual. The main difference between the Nyāya and the grammarian proposals is to do rather with the role of the class-feature F. The grammarians gave what are sometimes called ‘conditional assignments’ of truth-conditions. They say that if “that F” refers to object a, then “That F is G” is true iff a is G. The class F enters this account as part of a necessary condition on “that F” referring to a, viz. that a must be F. It does not, however, enter the truth-conditional content of the sentence, and for this reason is said by the grammarians not to be a ‘meaning-relatum’ or *vācya* of the term. On the other hand, the Nyāya account just given tries to give F a predicative role within the truth-condition: it *is* a ‘meaning-relatum’ or *vācya*. This, then, is a substantial point of disagreement between the two theories, and was discussed in depth by the Navya-Nyāya authors (see chapter 2). Let me note here, however, that in giving the class-feature a predicative role, the early Nyāya account assigns to both “That F is G” and “That G is F” the same truth-condition. This is counter-intuitive, for we expect there to be an asymmetry between the semantic role of F and G. Roughly speaking, while the role of G

is purely predicative, the role of F is individuative. In the light of the well-known arguments that objects are only singled out or identified under a sortal concept, we might say that its function is to help in setting up a subject for predication. This is one place where Gadādhara's Navya-Nyāya theory of meaning for nominals tries to improve on the earlier Nyāya *tadvat* theory.

The early Nyāya authors had a distinctive philosophical motivation for developing this theory of meaning. The Nyāya were in the first instance epistemologists (*pramāṇikāḥ*). They studied the means leading to knowledge and the criteria on the basis of which knowledge-claims are evaluated. Language was regarded as one such means, a cognitive process leading from the auditory perception of an utterance to a belief with a certain content. Hearers have the capacity to understand sentences, and to form beliefs, sometimes true, on the basis of what they hear. The purpose of a theory of meaning was now seen to be to show what this capacity consists in, and it was therefore facts about understanding which determined the kinds of semantic property attributed to words (c.f. chapter 4). Uddyotakara here significantly remarks that "the word "thing" (*sat*) is a referring expression; to what does it refer? [The rule is that] that object x which is understood from [hearing] a word y is the referent of it."[31]. The Nyāya authors were not driven, as were the Mīmāṃsā hermeneuticists, by the goal of validating Vedic discourse, but their epistemological project nevertheless made issues of interpretation and understanding central for them. If a property-possessor, rather than just a particular, was taken to be the 'meaning-relatum' of a noun, it was because someone who understands a sentence containing a noun not only thinks about its referent, but does so in a certain way or under a certain 'qualifier'. As we will see in chapter 2, some later Nayāyikas took this as signalling the need for a 'two-component' theory of meaning, while others tried to make an expanded theory of reference do duty for a full theory of meaning.

[31]*sad iti cāyam abhidhānaśabdaḥ, kasyābhidheyaḥ? yo yasmāt pratīyate sa tasyārtha iti.* (Gautama, 1936: 677).

1.6 Meaning, Definition and Analysis in Udayana

Udayana (C.E. 1050) is an important transitional figure in the history of Indian philosophy. He wrote commentaries within both the Vaiśeṣika and the Nyāya systems, and sought to find a common theoretical framework within which the two traditions could be combined. The centrepiece of this framework was a study of the semantics of nominal expressions, and the related issue of realism about universals. Since what Udayana has to say on these matters had an important influence on Gadādhara, through the work of Vardhamāna and Raghunātha, I will spend some time examining the key elements in his thought.

A realist theory of meaning sets up correlations between significant linguistic items and entities or meaning-relata of some kind. We would not expect such a theory to suffice for every expression in a language, since terms like "and" and "not" have a quite different semantic function, but for nominal and perhaps verbal expressions, it has a natural and intuitive appeal. A minimal constraint on such a theory is that the correlations should match synonymous expressions with the same meaning-relatum, and ambiguous expressions with as many relata as the expression has degrees of homonymy. This requirement was enough to show that Vyāḍi's proposal, according to which the meaning-relata of generic nominals are particulars, is inadequate, since an nominal like "tree" might nevertheless have a plurality of distinct referents. The only hope of retaining Vyāḍi's theory in its strict form would be to declare, as Russell once did, that indexicals are "ambiguous proper names", but the limitlessness and aberrancy arguments combined to reveal the hopelessness of that strategy. It seemed, however, that Kātyāyana indicated the way forward, when he said that nominals are used to refer to particulars on the basis of a property, and that a name for the property can be formed by affixing the abstraction ending to the nominal stem. The second part of this claim is what matters here. Kātyāyana's point is that there is a syntactical operation by means of which we can derive, from any nominal "F", a singular term "F-hood", and that the realist theory of meaning can straightforwardly correlate such terms with entities of a certain type, which

he called 'qualities'. It was not fully clear whether he considered 'qualities' or 'properties' to be extensionally or intensionally individuated, and this equivocation remained to some extent in the grammarians use of the term 'form' (*ākṛti*). What is important, however, is that we can now set up correlations between nominals and properties which serve to individuate the meaning of the nominals. The new criterion of synonymy is this: "F" is synonymous with "G" if and only if F-hood = G-hood, where F-hood is the 'basis' (*nimitta*) for the use of "F" and likewise for G-hood. Thus the nominal "tree" is correlated with the property tree-hood, and is not synonymous with the nominal "oak", since the property tree-hood is not the same as the property oak-hood.

Udayana, though largely agreeing with this picture, pointed out that it suffers from two distinctive sorts of defect, both deriving from the fact that it is applied univocally to all nominal expressions. His first point concerns complex nominals like "cook" or "white cow". It can hardly be an adequate account of the semantics of such terms to say that the meaning-relatum of "cook" is cook-hood, or that of "white cow" is white-cow-hood. If the 'properties' which are mentioned as the meaning-relata are taken to be 'real' universals (*jāti*), the proposal is ontologically extraordinarily prolix. There would have to be a distinct universal for each and every nominal. If, on the other hand, they are taken to be classes of particulars, the proposal renders synonymous any two nominals with the same extension. For example, "cow" and "animal having dewlap" are co-extensive, but do not mean the same: the sentence "(A) cow is (an) animal with dewlap", though true, is not a tautology. Closely related to this is a worry about the meaning of 'vacuous' nominals like "hare's horn". Since the extension of such expression is, by hypothesis, empty, the proposal renders all vacuous nominals synonymous. The conclusion Udayana draws from such arguments is that we must distinguish between a class of 'simple', unanalysable nominals and a class of logically complex nominals. The former are what he calls *naimittikī* terms, and the latter *aupādhikī* terms. Each 'simple' nominal is correlated with a 'real' property, either a universal (*jāti*) or a quality (*guṇa*), to the instances of which utterances of the nominal refer. Udayana's

characterisation of the universals, especially the condition that their extensions cannot partially overlap, strongly suggests that he takes them to consist in what we would now call natural kinds[32]. The 'simple' nominals comprise then the natural kind terms like "cow", colour terms like "red", and a small number of other quality terms.

Most other nominals are, according to Udayana, logically complex terms. Appearances notwithstanding, the application of the abstraction suffix to such a term, forming a word like say "beast-hood" (*paśutva*), does not give us the name of a 'real' property at all. The nominal "beast" is a logically complex term, meaning roughly "animal with a tail and a special sort of body hair". Similarly, the verbal noun "cook" means roughly "person who cooks" - in some cases, though not all, significant etymology indicates logical complexity. Now, Udayana makes the point by saying that the 'basis' which determines the domain of reference of such a term is a 'complex condition' or *upādhi*. There are, however, two quite distinct ways of interpreting this claim. One would be to regard the realist theory of meaning as applying even to the abstracts of complex terms, and to assign to each such term a corresponding 'complex' property as its meaning-relatum. According to this interpretation, an *upādhi* would be a 'nominal' or 'imposed' intensional entity, with a structure exactly matching that of the term to which it is related by the theory. Thus, the meaning-giving clause for "beast" would be <"beast" refers to things which possess beast-hood>, where beast-hood is analysed as the property of having a tail and a certain sort of hair. On the second interpretation, the scope of the realist theory is restricted to the class of abstracts of simple terms. The abstract of a complex term is not assigned a meaning-relatum, real or 'imposed', but is rather held to be a mere abbreviation of a longer description which gives its meaning, so that it can be eliminated from any sentence in which it occur in favour of that description. The idea now is that in the referring rules governing a term like "beast", no property beast-hood is mentioned in specifying the reference. The rule

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[32]See Matilal, (1986,: 424, fn. 55).

for such a term would be a non-homophonic clause of the form: <“beast” refers to things which have a tail and coarse hair>. According to this interpretation, an *upādhi* is a complex semantic condition in the meaning clause. Realist theories of the first sort have been constructed, for example by Cresswell (1973) and Bealer (1982), and Udayana often appears to speak of *upādhi*-s as if they are the meaning-relata of complex nominal terms. Yet his remarks on reference-failure suggest that he has the second sort of theory in mind[33]. Although, in later Nyāya, this second approach is clearly articulated, it seems that in Udayana the distinction between them is not sharply drawn.

Udayana's claim is that we can isolate a class of simple, unanalysable nominal expressions (*naimittikī*), for whose abstracts a realist theory of meaning is straightforwardly true. This is not a trivial thesis, for it is far from clear that any nominal is unanalysable. Why should we not analyse “cow” as “animal with dewlap” or “red” as “the colour with the greatest wavelength”? Udayana's discussion of the notion of a definition (*lakṣaṇa*) is very relevant here. He argues that the role of definitions is in the differentiation (*vyāvṛtti*) of the thing to be defined from things not covered by the definition. It emerges from this discussion that by a ‘definition’ what is meant is any true equivalence. For example, the following are both ‘definitions’ of a cow: x is a cow iff x possesses cow-hood; x is a cow iff x has a dewlap. Similarly, Udayana observes that in the Vaiśeṣika system, a number of different definitions of ‘substance’ have been given. Since the property of being a substance is, for the Vaiśeṣika, a real universal, one definition is just: x is a substance iff x possesses substance-hood. But other definitions are given, such as: x is a substance iff x possesses qualities, or x is a substance iff x is an inherent cause. This highlights the distinction between definition and analysis. The

[33] See the discussion of empty terms, which is based on Udayana, in Matilal (1971, ch. 4, esp. p.140). Udayana, we should note, has not given a Russellian theory of descriptions (reparsing descriptions as quantifier expressions), and is not offering a straightforwardly Russellian solution to problems about reference-failure. If we want to accomodate *referring* expressions which do not have any reference, we ought not try to construct clauses of the usual ‘realist’ form < “Pegasus” refers to Pegasus>, in which the name is correlated with an external entity, since by hypothesis there is no such entity available. Rather, we should have clauses like < $(\forall x)$ “Pegasus” refers to x iff x is Pegasus >, or <$(\forall x)$ “hare's horn” refers to x iff x is a horn and x belongs to a hare>, which states what condition any entity would have to meet if it is to be the referent. This became much clearer in the later Nyāya, but was at best only implicit in Udayana.

purpose of a definition is simply to supply a second description with the same extension as the first, there being no implication that the new description is an analysis of the original one. In this sense of definition, then, even the simples in Udayana's system can be 'defined'[34].

Udayana would therefore want to say that the sentence "x is a cow iff x possesses dewlap" is a 'reference-fixing' definition sentence, whereas the sentence "x is a beast iff x possesses animality etc." is an analysis of the term "beast", which reveals its hidden logical complexity. But how do we decide which extensional identity sentences are reference-fixing definitions, and which are analyses? Udayana famously gave a series of criteria to distinguish between simples and non-simples, notably that if two terms or properties have the same extension, then not both are simple, and that if two terms or properties are both simple, then the extension of one is entirely within the extension of the other (c.f. Matilal (1971: 73-77), K. Chakrabarti (1975)). It follows that "cow" and "beast" cannot both be simple expressions, since their extensions overlap. It is not clear, however, that his criteria are adequate. Consider the following pairs of sentences, taken from Goodman:

(1a) x is grue iff x is green if examined before time t and blue otherwise.

(1b) x is bleen iff x is blue if examined before time t and green otherwise.

(2a) x is green iff x is grue if examined before time t and bleen otherwise.

(2b) x is blue iff x is bleen iff examined before time t and grue otherwise.

In Udayana's system, "blue" and "green" are simple, *naimittikī*, terms, but "grue" and "bleen" are complex, *aupādhikī* terms. But none of his criteria supplies any reason for the alleged asymmetry between the pair red-green and the pair grue-bleen. The claim that red and green are simples seems to be part of Udayana's realism: there just is a set of basic properties, which are the meaning-relata of our simple or natural kind terms.

[34]Compare Russell: "It is clear that if you define 'red' as 'The colour with the greatest wave-length', you are not giving the actual meaning of the word at all; you are simply giving a true desciption" (1956: 194).

What is involved in understanding a 'simple' nominal or natural kind term? A clue to Udayana's likely answer can be derived from the following passage, in which Udayana notes that 'definitions' have another function, apart from differentiation:

> The alternative purpose of a definition is to establish the use of a word (*vyavahāra-siddhi*). Thus [we can infer as follows]:
>
> [This] thing under dispute is called "earth",
>
> due to the mark earth-hood.
>
> Whatever is not called "earth" is not earth, for example water.
>
> [But] it is not the case that this [thing under dispute] is not earth.
>
> Therefore, it is called "earth".
>
> The logical fault of 'not establishing the subject term' (*āśrayāsiddhi*)) does not occur [in this inference] because the object to which the word is used to refer is known independently. Nor does the fault of 'having an unfamiliar predicate term' (*aprasiddhaviśeṣaṇa*) occur, because [even] uninformed people [are able to] use the term "earth". [Moreover,] the inference is not useless, since it demonstrates that the subject term [i.e. this thing] is pervaded by a particular occurrence of the predicate term [i.e. the word "earth"]. (1971,: 29-30. See also Tachikawa, 1981: 113-4.)

Udayana here sets out an inference in one of the standard Nyāya five-step formats. The point he is making is that if a certain property is a 'defining' characteristic of earth, then from its presence in some object with which we are confronted, we can infer that the term "earth" applies to that object. It is, however, a precondition for the performance of any inference that we understand the hypothesis to be established, since what the inference purports to demonstrate is just that the hypothesis is *true*. Understanding the hypothesis requires both knowing which object is the subject of the inference, and which is the predicate. Knowing the predicate here involves knowing the use of the word "earth". What Udayana is stressing, when he says that even 'uninformed' people know how to use the term, is that the role of the inference is *not* to teach someone how to use the term. The point rather is that someone can know the correct use the term "earth", yet still be in doubt as to whether it can be used to refer to a given indicated object. Since to understand the term "earth", on the model Udayana advocates, is just to know that "earth" is used to refer to members of the kind earth-hood, the idea seems at

first to be that someone can understand the term "earth" without having the capacity to recognise instances of the kind earth-hood. Instead, we can rely on some observable 'defining' characteristic or trait, such as the property of having smell (*gandhavattva*), from whose presence in the object in question we can infer that it is in the domain of reference of "earth", that is to say, belongs to the kind earth-hood. The role of the definition is, as Matilal remarks, "not related with the analysis of the 'meaning' of the word, but rather with the application of the word to things" (1985: 194-5).

Udayana however cites as the defining characteristic the property earth-hood itself. This is not only somewhat inconsistent with the above interpretation, but also with the earlier remarks Udayana makes about the purpose of definitions[35]. It does suggest, however, an alternative interpretation of the passage. Someone who understands the word "earth" knows that it is correctly used only to refer to things belonging to the kind earth-hood. So if it is used on a particular occasion to refer to some object, the use is correct only if the object belongs to the kind earth-hood. Hence, my recognition of the object as belonging to that kind is my evidence for the truth of the statement "This object is properly referred to by the term "earth"". The dispute is about whether the object under dispute is in the domain of reference of the term, and it is resolved by recognising the kind to which the object belongs.

The deeper issue which divides these two interpretations is this: can someone understand a natural kind term without having the ability to recognise its members? Both answers seem consistent with the realist model of the meaning of such terms. One way of giving a positive answer to this question has been developed in detail by Putnam. On Putnam's model of natural kind terms, the reference of a natural kind term is initially deictically fixed in relation to a set of instances or exemplars of the kind, and the term is then used to refer to other objects belonging to *the same kind as* those exemplars. An ordinary language-user need not possess a very detailed description of the kind, nor

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[35]See Matilal, 1985: 191- 4. Reporting Udayana's inference, Matilal switches the defining characteristic from earth-hood to the property of having smell (*gandhavattva*), which is the property more usually cited as a '*lakṣaṇa*' of earth.

have the ability to recognise members of the kind, for, knowing that the term *is* a natural kind term, she uses the term with the intention of referring to members of the kind exemplified by the exemplars. She may, however, possess a 'stereotype' of the kind, for example, that its members have a certain smell, which roughly picks out the right objects. The negative answer to the above question was most fully articulated by Russell, who argued that understanding a simple term like "red" involves knowing which thing is its meaning-relatum, i.e. the property red. For Russell, this meant being in acquaintance with the property itself. It would be difficult, on the basis of this passage, to attribute one or the other view to Udayana[36]. What is clear, however, is that he would deny that natural kind terms are what Putnam calls 'one-criterion' words, that is words like "bachelor" for which there is an analytically equivalent description, knowledge of which constitutes one's understanding of the term. In fact, Putnam's 'one-criterion' words are much the same as Udayana's 'complex' or 'imposed' nominals (*aupādhikī*).

Udayana criticises the realist theory sketched out at the beginning for failing to distinguish between 'simple' and 'complex' terms, but as we saw it is not clear that he thought that this limited the scope of the theory. In another place, however, he claims that the theory must be restricted. Udayana argues that there is a class of nominals which are not correlated with any property, whether simple or complex. These are the 'logically proper' names in Udayana's atomism. I noted earlier that the Indian semanticists had reservations about treating ordinary proper names like "Devadatta" as logically proper, and these reservations also influenced Udayana. The terms he mentions are rather names of certain unstructured, homogenous particulars, which are mentioned in Vaiśeṣika metaphysics. Three such terms, "time", "space", and "*ākāśa*", were first identified by Praśastapāda (c. 500 C.E.). Praśastapāda claimed that the usual model for the meaning of a nominal referring expression (*saṃjñā*), according to which the term refers to an object on the 'basis' (*nimitta*) of that object's possession of a certain feature, cannot apply in

[36]I discuss this question further in chapter 2.6.

the case of these terms. The main reason he gave for this claim was that the property with which such a term would be associated, if the standard model is to apply, must be singly instanced, contradicting a universally accepted doctrine that a 'real' or 'natural' feature (*jāti*) cannot have just one instance. He therefore significantly asserted that these terms belong to a new semantic category, which he called the class of '*pāribhāśikī*' names[37].

Praśastapāda offered no positive account of the semantics of this new class of expression, nor did he give any clear criterion for deciding which terms belong to it. The terms cited seem, indeed, to have more than one unusual property. First, unlike ordinary generic nominals, their reference is not token-reflexive. Instead, each is semantically associated with a single individual, to which any utterance of that term refers. An immediate corollary of this is that such terms require no feature to delimit the domain of possible referents. Second, the individuals to which they refer are all homogenous, partless substances. In this, they differ from ordinary proper names, the names, for example, of people. It seems that the application of Vyāḍi's model to the terms distinguished by Praśastapāda has better prospects of issuing in a successful semantic theory, since the objects to which they apply do not change over time. Third, and perhaps most significantly, the *pāribhāśikī* terms are all in a sense 'theoretical' terms, terms introduced into the Vaiśeṣika philosophical discourse *via* specific reference-fixing stipulations. Take for example the term "*ākāśa*". The Vaiśeṣikas argue that sounds, which are considered to be qualities, must subsist in some substance. Yet no perceptible substance, nor any imperceptible substance whose existence is already acknowledged, can be the substratum of sound, since none displays the properties, such as ubiquitousness and homogeneity, deemed necessary. There must, then, be some other substance which is, among other things, the substratum of sounds. A name for this

[37] *ākāśakāladiśām ekaikatvād aparajātyabhāve sati pāribhāṣikyas tisraḥ saṃjñā bhavanti*. (Praśastapāda, 1971: 70). The label "*pārihāṣikī*" is usually rendered as "technical term". There are, however, many differences of opinion in the Sanskrit literature about the distinctive function of these terms, and for this reason I shall leave "*pāribhāṣikī*" untranslated.

substance is now introduced *via* the following stipulation: <Let the term "*ākāśa*" stand for that substance which is the substratum of sounds>. Analogous chains of reasoning presage the introduction of the terms "time" and "space" into the Vaiśeṣika discourse.

What Udayana says about Praśastapāda's *pāribhāṣikī* terms is very interesting:

> The three *pāribhāṣikī* terms, "*ākāsa*", "time" and "space", are [terms which] refer directly, without a basis (*nimittam antareṇa śṛṅgagrāhikatayā*).
>
> (Question:) What is the reason [for saying this]?
>
> (Answer:) It is because of the absence of any universal such as *ākāśa*-hood, etc.
>
> (Question:) And why is that?
>
> (Answer:) It is due to the fact that there is no plurality of particulars, since [*ākāśa* etc.] are unique [entities]. That is to say, the [Vaiśeṣika] definition of a universal, as that which is eternal, unitary, and occurring in a plurality of particulars, is not satisfied, the obstacle being due to the nature [of *ākāśa* etc.] itself.
>
> (Opponent:) Even then, [the term "*ākāśā*"] cannot be a *pāribhāṣikī* term, for it is held to be imperceptible. What is said [however] is that "*ākāśa* is that which is sound's substratum". So the property of being sound's substratum could be a 'complex condition' (*upādhi*).
>
> (Reply:) No! [That is not right] because [the function of] the property of being sound's substratum is to be an indicative mark (*upalakṣaṇatayā taṭastha*), just as is "this" when we say "This is Devadatta". Otherwise, the combined sentence (*sahaprayoga*) "*Ākāśa* is the substratum of sound" would not be proper [i.e. non-tautologous].
>
> (Opponent:) The addition of [the abstraction suffices] *-tva* and *-tal* to the word "*ākāśa*" would then [form a] senseless [word].
>
> (Reply:) No. [The term "*ākāśa*-hood"] denotes the nature of *ākāśa*, either metaphorically or [in the sense of its being] beyond distinctions [i.e. homogenous]. (Udayana, 1971: 70).

Udayana argues that "*ākāśa*" is a directly referential singular term, and he does so by eliminating two alternative hypotheses. The first is that it is a simple generic nominal or natural kind term. However, there are, for Udayana, strong theoretical reasons to suppose that no genuine natural kind can have, as a matter of necessity, just one instance. This may not be an implausible supposition, for we might think of the role of a natural kind fundamentally as determining a relation of relevant likeness between distinct individuals. A second alternative for the semantics of "*ākāśa*" is that it is a complex

nominal, an abbreviation for the description "sound's substratum". The motivation for this proposal is that *ākāśa* is imperceptible. The reference of the term is therefore fixed, not by an act of ostension, but *via* the stipulation <Let the term "*ākāśa*" stand for that substance which is the substratum of sounds>. Udayana here observes that the effect of this suggestion is to make the sentence "*ākāśa* is sound's substratum" a tautology (*paunaruktya* - Vardhamāna), just as "(A) beast is an animal with a tail and a specific sort of hair" or "A triangle is a three-sided figure" are tautologies. These sentences are true simply because a word like "beast" is nothing but an abbreviation for the description "animal with a tail and a specific sort of hair".

Udayana gives no explicit reason why the sentence "*ākāśa* is sound's substratum" is not a tautology. One stratagem here would be to try to argue that the reference-fixing stipulation shows that "*ākāśa*" is one of the so-called "descriptive names". The standard example of a descriptive name is "Julius", which is introduced *via* a reference-fixing stipulation <Let "Julius" refer to whoever invented the zip>. It is now claimed by some that the sentence "Julius invented the zip" is a contingent, *a priori* truth. It is contingent, because Julius, the person who in fact invented the zip, might not have done so. It is *a priori*, because anyone who understands the stipulation governing the use of "Julius" knows the sentence to be true. Perhaps, then, the sentence "*ākāśa* is sound's substratum" belongs to the contingent *a priori*. Its contingency would depend, if the preceding line of thought is correct, on the truth of the counter-factual "Something other than *ākāśa* might have been the substratum of sound". However, since "*ākāśa*" is a term taken from physical theory, this counterfactual is true only if there could be different laws of physics holding between the same set of physical objects, and it is far from clear that such could be the case. So this line of thought offers no clear support for Udayana's contention. In any case, the thesis that "*ākāśa*" is a descriptive name would lead to the conclusion that "*ākāśa* is sound's substratum" is *a priori*, and this is denied by Udayana, as his alternative proposal shows.

Udayana's counter-proposal is that the sentence "*ākāśa* is sound's substratum" is an *a posteriori* predication of the property of being the substratum of sound to a certain individual. "*Ākāśa*" refers to the substance *ākāśa directly*: there is no description or set of descriptions through whose satisfaction it singles out its referent. Vardhamāna says that Udayana's view is that we are capable, if not of grasping *ākāśa* perceptually, then at least through some quasi-perceptual faculty (*alaukika-pratyakṣa*). Although *ākāśa* is imperceptible, it is not abstract, and what effects it does have can ground an indirect causal relation between itself and those who use the term "*ākāśa*". Udayana adds that the description "sound's substratum", though not a synonym of "*ākāśa*", is an 'indicatory mark' of its referent. The term he uses is "*taṭastha*", which is defined in Apte's dictionary as "that property or *lakṣaṇa* [definition] of a thing which is distinct from its nature, and yet is the property by which it is known; e.g. the property of having odour in the case of earth". Thus the property of being the substratum of sound is a syndrome or identifying trait of *ākāśa*, just as having black stripes is a characteristic trait of a tiger, or having a dewlap is a trait of a cow. The sentence "*ākāśa* is the substratum of sound", like "a tiger is an animal with black stripes" or "a cow is an animal with dewlap", is a 'definition' only in that it gives a true, reference-fixing, description of the substance or kind in question. If there is a difference between the natural kind terms like "tiger" and terms like "*ākāśa*", it is that "*ākāśa*" seems to be linked, in the common knowledge of the linguistic population, with just one identifying trait, namely the property of being the substratum of sound. Yet even if there is a community-wide association between "*ākāśa*" and this one description or 'definition' (*lakṣaṇa*), it does not follow that the name is used to refer to whatever satisfies that description[38]. Thus "*Ākāśa*" is for Udayana a genuine proper name, for which the Vyāḍi theory of meaning, or something very much like it, is true[39].

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[38]Evans (1982: 48, 394) illustrates just this point by citing the case of the name "Homer", which is generally associated with the description "the author of the Iliad and Odyssey", but is not synonymous with this description.

[39]For a further discussion of the notion of a *taṭastha* or 'identifying trait', see chapter 2.5.

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2

Navya-Nyāya Theories of Meaning

The post-Vyāḍi Particularists draw attention to the existence of meaning invariants, constant elements in the convention-based meaning of nouns. They point out that a meaning clause of the form <the word "pot" refers only to pots>, in which a property or class pothood (the meaning invariant) functions as a bound on the permitted referents of the word "pot", preserves the essential doctrine of Meaning Particularism, that the semantic value or 'meaning-relatum' of such an expression is a particular, but is immune to the 'limitlessness' and 'aberrancy' faults of Vyāḍi's theory. According to Vyāḍi's realist conception, the 'meaning' of a noun is the particular for which it stands. In the new theory, although as before the meaning-relatum of any given utterance of a nominal is a particular entity, we are now to regard the nominal type as being associated by the linguistic conventions with a function mapping utterances to objects within a certain class. The meaning-invariant is that property or feature which fixes, or to use the Nyāya term, 'delimits' (*avacchidyate*) the range of this function. The linguistic conventions do not, in general, uniquely determine the function, for there may be more than one object of the relevant kind in the context of utterance. They do however determine a necessary condition on the reference function: if y is the referent of x, then y meets a certain condition C. For example, if y is the referent of an utterance of "pot", then y possesses the property pothood. To turn this into a sufficient condition, further features of the context, such as an act of pointing by the speaker, must be taken to determine which of the plurality of objects that meet condition C is the referent of that particular utterance. The reference of the utterance, therefore, is fixed by a combination of purely linguistic and contextual factors. In any case, where the Vyāḍi model could not give a workable account of synonymy, the new theory is able to say that two nominals are synonymous if they are linked with the same functional relation between utterances and entities.

The introduction of functional relations does not significantly undermine the claims of the theory to be a referential account of meaning, one which sees meaning as consisting in correlations between words and objects. There is still just one meaning relation, albeit a functional relation whose range and domain must be specified. But can a referential account of meaning suffice as a complete account of meaning, or are there facts about meaning which the specification of word-object relations does not capture? It was Frege who, in the Western debate, first called into question the sufficiency of the realist model. He pointed to the non-synonymy of co-referential expressions, and sought a new criterion of synonymy grounded in facts about the cognitive significance of language. In India, members of the 'new' Nyāya are responsible for systematically bringing such considerations to bear on the theory of meaning. Here, I would like to reconstruct Gadādhara's theory of meaning, and to consider also his criticisms of earlier Navya-Nyāya proposals. I begin, however, with Vardhamāna, whose reformulation of the Nyāya theory proved to be very influential in the later Nyāya tradition.

2.1 Vardhamāna's Principle

Vardhamāna (c. 1440 C.E.) highlights the central problem for the realist theory. According to the realist theory, the linguistic meaning of an expression like "[the] pot" is given by the clause <"[the] pot" refers to a pot>, or, more accurately,

$$(\forall y: \text{“pot”-token})(\exists x{:}\text{pot})(y \text{ refers to } x)$$[1].

That is to say, utterances of the word "[the] pot" refer only to members of the class of pots. The class of pots, however, can be picked out in a number of different ways, for there are many descriptions which have this class as their extension. The class of pots, for example, is also the class of objects with a certain mereological composition (*ākṛti*), expressed perhaps by the description "thing with a handle and a conch-shaped neck"[2]. Now, if giving the meaning of an expression is simply a matter of fixing the class of

[1] This formulation of meaning specifications using quantifiers is elaborated in the Appendix §8.1.
[2] C.f Vardhamāma, (1911: 334) and Mathuranātha's comments.

objects to which, in a given context, it can refer, it would seem to follow that the meaning clause for "pot" could be equally well stated by

$$(\forall y{:}\text{"pot"-token})(\exists x{:}\text{thing-with-handle-and-conch-shaped-neck})(y \text{ refers to } x).$$

Since this is just the clause we would like to give for the phrase "thing-with-handle-and-conch-shaped-neck", the realist theory apparently entails that all co-extensive nominals are synonymous. For Vardhamāna, the unacceptability of this consequence rests on linguistic intuition. It was Gadādhara who first supplied an explicit demonstration that coreference is not sufficient for synonymy, as I will show later.

One solution to the puzzle would be to point to the logical complexity of phrases like "thing-with-handle-and-conch-shaped-neck". We should not after all give a distinct semantic clause for every such phrase, since there are indefinitely many complex nominals in the language. Rather, there should be rules showing how the reference of such expressions is derived from the meaning clauses of their component terms. We might then stipulate that two nominals are synonymous just in case they are composed of the same semantic primitives in the same logical structure. This is, in effect, the solution Udayana offers. For it to succeed, it requires that no two semantic primitives have the same extension, and it entails that any two expressions with the same extension either have distinct logical structures or are identical. These are principles to which Udayana explicitly committed himself. Udayana has in effect employed a notion of 'extensional isomorphism', the extensional analogue of Carnap's 'intensional isomorphism', as a criterion of synonymy.

The later Naiyāyikas, however, seemed to recognise that the puzzle goes deeper than a phenomenon of complexity. For why can there not be co-extensive pairs of *primitive* expressions? Vardhamāna intriguingly mentions the so-called "universally present" (*kevalānvayin*) terms, terms whose extension is the entire universe of discourse. The usual examples in Nyāya are "exists", "is nameable" and "is knowable". We may, of course, claim to find structure in these terms too, but it is perhaps not clear that the criterion of complexity to which we then appeal is prior to and independent of our

judgements of synonymy. In any case, even if the extensional isomorphism criterion is sufficient for synonymy, it is surely not necessary, since "pot' and "thing which is a pot", or "... is a pot" and "It is true that ... is a pot" are synonymous but structurally distinct pairs of terms.

Vardhamāna's solution is rather different. He claims that the property which delimits the extension of the nominal is itself a 'meaning-relatum' of that nominal. This thesis is stated as part of his celebrated analysis of a meaning-invariant (*pravṛtti-nimitta*):

> A meaning-invariant is [a property] which (i) is a meaning-relatum, (ii) occurs in each meaning-relatum [other than itself], and (iii) regulates the presentation of the meaning-relata[3].

Elsewhere, he tries a variant of this definition:

> A meaning-invariant is [a property] which (i) is a meaning-relatum, (ii) occurs in each meaning-relatum other than itself[4].

The difference between these two definitions is not very relevant here. Whichever is adopted, Vardhamāna is now able to say that co-extensive nouns are associated by linguistic convention with different intensionally individuated properties, and hence have different meanings. In the meaning-clause for "[the] pot", the property pothood is to be thought of, not merely as fixing the reference of the term, but as itself part of the meaning.

Vardhamāna's idea is elaborated at some length by Gadādhara. We saw in the last chapter that 'meaning' in the early Nyāya, Mīmāṃsā and Grammarian traditions alike is a relation between words and entities (*padārthayoḥ saṃbandhaḥ*). The distinctive doctrine of the Nyāya is that the object is neither just a particular, nor just a universal, but a 'structured complex' (*viśiṣṭa*) of the two:

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[3]*pravṛtti-nimittaṃ ca vācyaṃ sad-vācya-vṛttitve sati vācyopasthāpakaṃ gotvādi,* (1933: 34).
[4]*pravṛtti-nimittatvaṃ śakyatve śakya-vṛttitve ca svabhinnaśakyānadhikaraṇatvaṃ*, (1911: 333).

> The meaning relation (*śakti*) obtains between a word like "[the] pot" and [a particular] as qualified (*viśiṣṭa*) by a property like pothood, which is the meaning-invariant (*padārthatāvacchedaka*) (Gadādhara, 1927: 40).

This view is sometimes called Descriptive or Qualified Particularism (*jāti-viśiṣṭa-vyakti-śaktivāda*). The notion of a 'structured complex' is somewhat obscure, however, and Gadādhara shows how, with the help of Vardhamāna's proposal, it can be eliminated altogether:

> This is what they [silicet Vardhamāna] say. The meaning of [the assertion that] the meaning relation holds [between the word "(the) pot" and] an object which is qualified by pothood is that it holds between [the word] and each of three things, the property [pothood], the substratum of that [property, i.e. the pot individual], and the qualifier-qualificand relation [between the two, i.e. inherence]. So, even though the relata of the meaning relation for the word "(the) pot" are [by virtue of being pots] qualified by substancehood, since substancehood is not an [explicit] meaning relatum it is [said to be merely] an 'indicator' (*upalakṣaṇa*) [of the pot]. [On the other hand,] since pothood is an [explicit] meaning relatum, it is [called] a 'qualifier' (*viśeṣaṇa*). Thus, in [Vardhamāna's] definition of a meaning-invariant (*pravṛtti-nimitta*), as "that which is (i) [itself] a meaning-relatum, (ii) located in the meaning-relata, and (iii) the mode under which the meaning-relata are presented", the clause "is itself a meaning-relatum" is given because even the meaning-invariant is a meaning-relatum. The *Nyāya-sūtra* [2.2.66] "The meaning of a word is a universal, a 'form' and an individual" also makes [the claim] that the universal such as cowhood is [itself part of] the meaning of the word "(the) cow" (1927: 41).

The main point here is that the same object or set of objects can be picked out in a variety of different ways, so if terms having the same extension have different meanings, they must be associated, by the linguistic conventions governing the term, with different intensional properties[5]. Gadādhara notes that the property is called a 'qualifier' rather than an 'indicator' because it is explicitly mentioned in the meaning-specification, and he observes too that Vardhamāna's idea is implied in the earlier Nyāya definition of word-meaning. Vardhamāna's principle, indeed, codifies the central claim of the *tadvat* theory,

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[5] I will ignore the additional complications concerning the relation here, just as I have ignored the term "*ākṛti*" ("form") in *Nyāyasūtra* 2.2.66.

that the property associated with a nominal is itself a semantic value (*vācya*), as too is the object referred to.

There are two elements to Vardhamāna's doctrine. The first is the explicit awareness of the intensionality of meaning. I do not mean by this such specific phenomena as, for instance, the substitution-failure of co-referring expressions in opaque contexts, but simply that he recognised that the relata of the meaning relation cannot be purely extensional entities. The second element in Vardhamāna's doctrine concerns the form of meaning specifications. In order to specify the meaning of a generic nominal, uttered on a particular occasion, we must explicitly state both the referent of the nominal on that occasion and the intensional property with which it is associated. Vardhamāna's principle entails that a meaning theory can no longer be constructed as a theory of reference alone, containing clauses of the form <"Hesperus" refers to Hesperus> or <"[The] pot" refers only to pots>. A meaning-theory should include an explicit statement of the intensional element. Let us therefore represent Vardhamāna's view by means of a 'two-component' meaning relation, "w means <x, f>", where "x" ranges over particulars and "f" is the name of a property. A generic nominal stands in an extensional relation with both an object, its referent on a particular utterance, and a property. We will see in the next section how Gadādhara reinterpets this claim.

Although Vardhamāna rejects the central idea of the realist model, that a meaning theory is nothing but a theory of reference, he would reject too the suggestion that reference is not an 'ingredient' in meaning at all. In analysing the semantics of the nominals, the Nyāya took themselves to be studying a class of indexical, and therefore context-sensitive, expression. But if a noun like "pot" is an indexical referring expression, then there is no sense in which the intensional element in its meaning, i.e. pothood, alone determines its reference. The intensional element in Nyāya does not mediate or uniquely determine the reference of a term - this, indeed, is why meaning specifications have two components.

Vardhamāna's principle, that the feature which is the constant element in the meaning of a nominal is itself a meaning-relatum of that nominal, has another important consequence in Nyāya semantics. Vardhamāna follows Udayana in claiming that there are names which refer directly, without the mediation of any property or descriptive feature. The meaning clause for a name like "*ākāśa*", which they take to represent this class, would be of the form

"*ākāśa*" refers to the substratum of sound,

where here the description 'being the substratum of sound' is simply a way of fixing the reference of the name. The problem is to distinguish such terms from nominals like "pot", which are semantically associated with a particular descriptive feature. The distinction can be made out if the meaning relation for terms like "pot" is triadic, taking the feature as well as the particular as relata, whereas the meaning relation for terms like "*ākāśa*" is the usual diadic word-object relation. According to Gadādhara (1927: 65), this was itself a motivation for the doctrine. A better understanding of the doctrine in Gadādhara's theory leads therefore to an explanation of the descriptive content associated with certain kinds of referring expression.

An immediate objection to Vardhamāna's proposal, however, is that it mistakenly treats this descriptive content as if it were predicational. When a term is used to make a reference, it picks out an object which becomes the topic or subject of discourse. But when a term is used predicatively, it does not single out any object at all but says something about one - a predication is a function from objects to truth-values. We might grant that nominal expressions have both a referential and a predicative use, as when we say "[That] pot is blue" and "Here is [a] pot" respectively, but Vardhamāna appears to imply that nominals both refer to an object and predicate something of it simultaneously. For to say that the property pothood is a meaning-relatum is to say that it enters the content of any sentence in which "pot" occurs, and there is for Vardhamāna no way for it to do this other than as a 'qualifier' (*viśeṣaṇa*) or predicate of the main subject. A sentence like "[That] pot is blue" is analysed in effect as "[That] is a pot and

is blue". This reveals the continuity of Vardhamāna's proposal with that of the earlier *tadvat-* theorists. The analysis, however, is flawed for at least two reasons. First, it fails to distinguish between the meaning of "[That] pot is blue" and "[That] blue[-thing] is a pot" - both are assigned the same truth-conditions. Second, it misrepresents what happens when the speaker is mistaken in her belief that the object to which she intends to refer is a pot. According to the current proposal, the sentence is now false, for it mistakenly predicates pothood of some antecedently individuated object. Yet it is unclear how any object could have been singled out: if there are no pots around, the sentence "[That] pot is blue" refers to nothing. Nor can Vardhamāna's proposal be assimilated to Donnellan's 'referential use' of a description. For although Donnellan claims that nominals refer to objects even when the description is erroneous, since the role of the description is then merely heuristic, the sentence should turn out to be true.

There is a strong intuition that a sentence of the form "The ϕ is F" or "That ϕ is F" cannot be used to express the fact that something is ϕ. The reason is that, if nothing is ϕ, then the sentence fails to make reference to any object at all. The point is often made by saying that a sentence of that form 'presupposes', but does not state, that something is ϕ. Vardhamāna's theory, and the earlier *tadvat*-theory from which it developed, seems incapable of accounting for this distinction between the semantic roles of 'ϕ' and 'F' as they occur in "The/that ϕ is F", and hence for the phenomenon of presupposition. Gadādhara has what amounts to a reply to this criticism, one which depends on finding a non-predicative role for properties in the content of sentences. It is to this that I shall now turn.

2.2 Gadādhara's Interpretation of the Principle.

In the early Nyāya, the content of thoughts, and of the sentences by which they are expressed, are analysed as having a simple relational structure. Every thought has three elements, a 'qualificand' (*viśeṣya*) or subject, a 'qualifier' (*viśeṣaṇa*) or predicative property, and a relational connector (*saṃsarga*) which links the qualificand and qualifier

together. Thus, content of the thought expressed by "[The] pot is on [the] ground" is a triadic relational complex comprising a pot, the ground, and a relation of location. There is a partial correspondence between elements in the thought-content and the terms in the sentence. This picture is in some ways reminiscent of the early Russell, and faces some of the same objections - problems about the unity of the proposition, syncategoramicity, etc. The new Nyāya, without entirely abandoning this model, introduced important new elements into it. Perhaps the most significant modification followed from their recognition that we do not in general simply think about objects as such, but only as the objects are presented to us in certain ways or 'guises' (*viśeṣyatāvacchedaka*)[6]. I might think of an object as a pot, but also of the same object merely as a substance, and so on. Equally important was the recognition that these 'ways of thinking' or 'guises' are not predicative - the truth or falsity of my thought depends on *what* I think about the pot, not *how* I think about it. The role of the guise is more correctly characterised as individuative, helping the cogniser to single out a unique object in thought[7].

The Nyāya named the guises by using the intensional abstraction device: if I think of some object as a pot, the Nyāya say that I think of it under the guise *pothood*. Yet this use of the abstraction device carries no implication that the guises are reified into physical kinds or universals. If I am thinking of something as the fourth bus stop before the traffic lights, the Nyāya happily form the 'property' fourth-bus-stop-before-the-lights-hood. Admittedly, the usual propensity in Nyāya is towards reification of its explanatory postulates, but Matilal suggests that here "[t]he Nyāya doctrine of *svarūpa* relation and imposed property [*upādhi*] is merely a heuristic device necessary for the semantic analysis of certain types of cognition" (1968: 50). And more recently he says of what he calls 'the domain of semantico-epistemic entities', that it "should contain any

[6]For a detailed analysis of the Nyāya critique of the myth of the 'given', see Matilal (1986] 342 - 354) and (1991).

[7]See Matilal, (1986: 381-2): "P1 [the principle that "if something is presented in awareness, it is presented there under the cloak of a purported property"] actually leads to a theory of identification of objects through descriptions or information about them. I cannot identify an object unless I already possess some information about it".

entity posited for the analysis of knowledge, judgements or sentences to facilitate structural analysis of them for our understanding......The nominal or 'bogus' universals [*upādhi*] and abstract properties are no doubt talked about but only as a heuristic device for assigning some semantic interpretation to sentences and for analysing the instances of knowledge that are verbalised or expressed therein" (1986: 417-8). It may be best to regard these entities as *pleonastically* mentioned in the belief attributions, and to regard the attribution "S thinks of x, under the guise pothood, that it is F", for example, as a clearer if more cumbersome way of saying the same as "S thinks [the] pot is F".

In Navya-Nyāya, then, the ascription "S believes that p" is analysed as instantiating a three-place relation **Bel**. One relatum is the subject S, or, more precisely, a token mental event 'owned' or located in S. The second relatum is a triplet (x, y, r), whose members are object or relation particulars. These are respectively the qualificand (*viśeṣya*), qualifier (*viśeṣaṇa*), and relational connector (*saṃsarga*) of the belief. This triplet is not unlike a Russellian proposition. The third relatum of the **Bel** relation is another triplet (π, ϕ, ρ), whose members are the "guises" or "modes" (*viṣayatāvacchedakāḥ*) under which the qualificanda are presented, and are called respectively the delimitor of qualificandhood (*viśeṣyatāvacchedaka*), the delimitor of qualifierhood (*viśeṣaṇatāvacchedaka*), and the delimitor of relationhood (*saṃsargatāvacchedaka*) of the belief[8]. We might call this triplet the "liminal frame" of the belief. It should be noted that this use of the term 'delimitor' *avacchedaka* is not the same as the "bound on the range of a quantifier" use mentioned above, and developed in the Appendix. The properties mentioned in this triplet, which are known as the *svarūpa* delimitors (c.f. S. Bhattacharyya, 1987: 239-4), differ from the quantifier-delimitors in that if they are to individuate belief content sufficiently finely, the *svarūpa* delimitors must be properties taken in intension. To give an example. The Nyāya analyse the

[8] A number of authors working within the framework of the theory of direct reference have endorsed versions of this triadic analysis of belief attribution. See, for example, Salmon (1988: 255), Salmon (1986) and M. Richard (1988). Kaplan's idea, that the third relatum is a function from contexts to contents, what he calls its character, has been especially influential. It would be interesting to explore the relation between these accounts and the Nyāya theory.

sentence “King George believes that the author of *Waverley* is the author of *Ivanhoe*” as “King George believes, of Scott, under *Waverley*-author-hood, and of Scott, under *Ivanhoe*-author-hood, that they are related by identity”. Now, since the two properties Ivanhoe-author-hood and Scott-author-hood are co-extensive, if this method of individuating beliefs is to work, we cannot take the properties mentioned in the liminal frame extensionally[9].

It is to this richer account of belief content that Gadādhara appeals in his attempt to refine and defend Vardhamāna’s thesis. He says first that

> the rule is that the [interpretative] cognitive-event derived from [an utterance of] the word “(the) pot” is not [one which grasps the object under the] mode substancehood, neck-handle-etc-possessing-hood, etc., but only under the mode pothood,[10]

and adds that if, in the meaning clause for the word “pot”, the description ‘pothood’ or ‘being a pot’ is merely an arbitrary way of picking out the appropriate class of objects, an ‘indicator’ (*upalakṣaṇa*), then the rule could not govern the ‘guise’ or mode under which the referent is to be thought. The main point here is that when we spell out what it is to understand a given referential term, it is not sufficient to state *which* object is to be thought about; we must also specify *how* that object is to be thought about or identified. One who hears the sentence “[That] pot is blue”, but identifies the referent of “[that] pot” simply as an unspecific substance, has not understood the sentence correctly (1927: 59).

Gadādhara’s solution to the problem of non-synonymous but co-extensive terms is now clear. He will say that to give the meaning of a term we must specify, not just the class of objects to which it can refer, but the way in which those objects are identified. The problem which he next addresses is how to represent this fact within a theory of meaning. He begins with a question. Since a linguistic rule is of the form “On hearing the word “pot”, one should entertain a thought about [a] pot”[11], it seems that the rule

[9] See also Matilal (1968: 74) and (1986, § 12.5).

[10] *ghaṭādi-padād dravyatva-kambugrīvādimattvādinā na bodhaḥ, api tu ghaṭatvādinaiveti niyamaḥ.* (1927: 40)

[11] *ghaṭaśabdād ghaṭo boddhavya iti*. I discuss the Nyāya approach to linguistic rules and conventions in chapter 4.8.

explicitly states only which object is to be thought about. How can one claim that the rule also specifies the mode under which the object is to be thought about? Gadādhara says that

> although the pot-particular, pothood, and the relation are covered by the linguistic rule [for the word "pot"] in different ways, we say that there is a single meaning relation because [each of the three] is an element in the content of the thoughts regulated [by that rule] (1927: 44).

According to the Nyāya, the conventions governing a linguistic practice take the form of mandates determining what it is correctly to understand each expression in the language. If the conventions are such that anyone who hears and understands a certain word w entertains a thought concerning an object x, then x is a constituent in the meaning of w. The usual conventions for the word "[that] pot" are such that, when I hear this word uttered in a sentence, I have understood the utterance only if I identify a certain particular in the context, and moreover, if I identify it under the guise pothood. Thus, both the particular object and the property pothood are meaning-constituents of the term. This is so even though the way in which they enter the content of my thought is different. One is the qualificand or locus of the thought[12], the other is the guise under which it is presented, a consituent of the 'liminal frame' of the thought[13].

Gadādhara recognises, then, that a meaning theory must specify, not just the reference of each expression in the language, but the 'guise' under which it is to appear if properly understood. He draws from this the conclusion that a meaning theory has two distinct components, a theory of reference and a theory of the 'guise'-element. This is how he reinterprets Vardhamāna's principle. There were, however, other Naiyāyikas who, while conceding that a meaning theory must specify the 'guise' under which the reference of an expression is to appear, denied that this necessitated any supplementation of the reference-specifications supplied by a theory of reference. These theorists argue

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[12] *āśrayatva-saṃbandhāvacchinna-bodhaviṣayatva-prakāratā-nirūpita-viśeṣyatvam ghaṭasya.* (1927: 44).

[13] *ghaṭaviśeṣanatāpanna-bodha-viṣayatvāṃśe 'vacchedyatva-saṃbandhena prakāratvaṃ ghaṭatvasya.* (ibid.)

that a suitably chosen theory of reference is adequate as a complete meaning theory, on the ground that it will display or somehow reveal the guise-element as well. They rejected Vardhamāna's principle, and clung to the original 'realist' form of meaning specifications. Gadādhara carefully reconstructs and criticises the views of these theorists. Therefore, before analysing Gadādhara's 'two-component' conception further, I would like to look at this important idea, as well as its parallel in recent Fregean literature.

2.3 The Adequacy of Referential Meaning-Theories

The introduction of 'guises' into the Nyāya theory of meaning partially resembles Frege's introduction of a distinction between the 'sense' of an expression and its reference. Fregean semantics asserts that there is a single entity which is at once (i) the meaning of a sentence, (ii) the bearer of truth-value, (iii) the object or content of thought, and (iv) that by which thoughts having different cognitive significance are individuated. Frege called such an entity either a Thought or the sense of a sentence. It was the fourth of the above properties which, in the first instance, motivated the introduction of the notion of sense. Frege observed that it is possible for someone to believe different things about the same object, at the same time, if presented with the object in different ways. Indeed, we can take this idea of a 'mode of presentation' or 'way of thinking' about an object to be defined by the following Constraint:

> Necessarily, if m is a mode of presentation under which a minimally rational person x believes a thing y to be F, then it is not the case that x also believes y not to be F under m. In other words, if x believes y to be F and also believes y not to be F, then there are distinct modes of presentation m and m′ such that x believes y to be F under m and disbelieves y to be F under m′[14].

It is sometimes denied that the Nyāya has anything resembling the notion of Fregean sense, and if by that what is meant is the notion of an entity satisfying all four conditions mentioned above, then this is correct. In Gadādhara's theory, for example, the

[14]Schiffer, (1978: 180). Technically, Frege's Constraint is just a consequence of Leibniz's Law.

bearer of truth-value is the qualificand-relation-qualifier triplet, whereas what individuates a thought is the complete 'content-structure' (*viṣayatā*), which includes the guises (*viṣayatāvacchedaka*) under which the qualificand and qualifier are presented. If, however, we use the term 'sense' stipulatively, to denote whatever it is that satisfies Frege's Constraint, then the Nyāya 'guises' might quite properly be described as the senses of the expressions with which they are associated. For what distinguishes a tautologous thought like "[The] pot is [the] pot" from a potentially significant thought like "[The] pot is [the] object on the table" is, in the Nyāya theory, the fact that the guises (*viśeṣaṇatāvacchedaka*) in the two thoughts are different[15].

Gadādhara recognises that a complete theory of meaning must include both a specification of the reference of each referring expression and a specification of the 'guise' or 'mode' under which the reference is to be identified. The second of these is what we might call, following Frege, the theory of sense. According to Gadādhara, what this shows is that a complete theory of meaning has two separate components, one concerning reference and the other dealing with the guise-element. But could we not argue instead that, although we must specify the guise-element in meaning, we can do this *via* a theory of reference? This line of thought has become fairly standard in recent Fregean literature:

> Although a theory of meaning for a language must give the senses of expressions, we are not to think of the theory of sense as a separate tier, additional to and independent of the theory of reference. ..... Rather than look for a theory quite independent of the theory of reference, we must take one formulation of the theory of reference - the formulation of the theory *which identifies the references of expressions in the way in which one must identify them in order to understand the language* - and make it serve as a theory of sense (Evans, 1985: 294-5, my italics).

A theory of meaning, these theorists argue, should not be thought of as having two independent components, one specifying the reference of each expression, and the other

[15]It might be thought, however, that even a sentence like "[The/that] pot is [the/that] pot" is potentially informative: suppose, for example, that the speaker is pointing to a pot in front of her and also to the reflection of a pot through a complex system of mirrors. If this supposition is correct, then the 'guise' does not individuate meaning as finely as a fully Fregean sense.

> the idea in this view is that the limitor of qualificandhood (*viśeṣyatāvacchedaka*) of the [hearer's] knowledge of the linguistic rule regulates the 'guise' [under which the referent is presented] in the interpretational state (*śābdabodha*)[16].

Let me explain this a little. The two meaning clauses, <"Hesperus" refers to Hesperus>, and <"Hesperus" refers to Phosphorus>, are extensionally equivalent because ".. refers to ..." is a transparent context. The advocate of the theory we are considering, however, points out that the corresponding items of hearers' knowledge:

S knows that "Hesperus" refers to Hesperus, and
S knows that "Hesperus" refers to Phosphorus,

are not extensionally equivalent, since knowledge ascriptions generate an opaque context. This intensional difference is expressed in the Nyāya technical language by citing the 'guise' (limitor of qualificandhood, *viśeṣyatāvacchedaka*) under which the object appears in the hearer's cognitive state, which is dubbed Hesperus-hood in the first case and Phosphorus-hood in the second. The suggestion is that it is this difference which provides grounds for preferring the first of the two meaning clauses, and consequently that there is no reason to modify the usual referential meaning relation.

This way of cashing out the 'state-show' metaphor is associated with 'austere' conceptions of Fregean sense[17]. Austere theories defend the idea that a theory of reference can "serve as" a complete theory of meaning because reference clauses are embedded in an intensional context, the name user's knowledge of the linguistic rule. In this way they claim to account for the non-synonymy of co-extensive pairs like "Hesperus" and "Phosphorus" or "[the] pot" and "[the] thing-possessing-handles-etc.".

Gadādhara himself endorses this theory for the class of referring expressions which he calls "non-descriptive designators" (*viśiṣṭāvācaka*), which include ordinary

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[16]*tanmate śaktigraha-viśeṣyatāvacchedakatvasyaiva śābdaprakāratā-niyāmakatvād iti bhāvaḥ*. (1934: 134-5).

[17]The idea behind the austere conception is explained thus by McDowell: "[K]nowledge that 'Hesperus' stands for Hesperus would suffice, in the context of suitable other knowledge not directly involving the name, for understanding utterances containing 'Hesperus'; and similarly with knowledge that 'Phosphorus' stands for Phosphorus and utterances containing 'Phosphorus'. Now, if someone knows that 'Hesperus' stands for Hesperus and that 'Phosphorus' stands for Phosphorus, it does not follow that he knows either that 'Hesperus' stands for Phosphorus or that 'Phosphorus' stands for Hesperus". (1977: 164).

proper names as well as the *pāribhāṣikī* name "*ākāśa*". According to Gadādhara, anyone who understands the name "*ākāśa*" identifies its referent in a particular way, but there is no requirement in the public language that everyone identifies the referent in the same way. And now,

> in order to explain [the possibility of] an interpretation under the mode "being a substance different from the other eight kinds of substance" etc. from the name "*ākāśa*", used literally, one should admit that the hearer knows the reference under a mode [m, viz. being a substance different from the other eight kinds of substance] which is not a meaning-relatum [and that this mode] regulates an interpretation [of the reference] under that mode [m] [18].

Note first that this passage reveals why Gadādhara does not think that the theory can suffice as an account of the meaning of generic nominals. For what this theory entails is that

> for each person S, there is a mode p such that S interprets w as x correctly iff S identifies x under p.

The linguistic conventions for a nominal like "[the] pot", however, inter-subjectively associate the term with just one way of identifying the reference:

> There is a mode p such that, for each person S, S interprets w as x correctly iff S identifies x under p.

It may well be, however, that a proper name is not associated with a particular way of identifying its reference, shared by the entire linguistic community. Each language user identifies the referent of "*ākāśa*" under a mode or descriptive feature, but the particular mode varies from person to person. One hearer might identify *ākāśa* under the mode "a substance different from the other eight kinds of substance", another under the mode "the substratum of sound" - there is no hard and fast rule[19]. The only restriction on the

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[18] *ākāśapadāc chaktyāṣṭadravyātirikta-dravyatvādinā bodha-nirvāhāya viśiṣṭāvācakākāśādipadasya prakārāṃśe vācyatvānavagāhita-śaktigrahasyaiva tad-dharmāvacchinna-viśeṣyakasya tatprakārānvayabodhe hetutvam agatyāṅgīkāryam*, (1927: 73). C.f. Mañjūṣā: *tādṛṣa-[aṣṭadravyātiriktadravyatva]-dharma-prakāraka-śābdabodhe taddharmaṃ dharmitāvacchedakīkṛtya pada-prakāraka-janya-śābdabodha-viṣayatva-niṣṭha-prakāratā-nirūpita-viśeṣyatā-saṃsargaka-śakti-jñānaṃ hetur ityarthaḥ*. (1927: 74).

[19] *śaktyākāśapadād aṣṭadravyātirikta-dravyatvādinā 'py ākāśabodho bhavati na tu niyamataḥ śabdāśrayatvenaiva.* (1927: 70).

idiosyncratic descriptive features is that they all pick out the same object, *viz.* the object *ākāśa*.

We must distinguish then between a description of any particular language-user's ideolect, and that of the linguistic rules governing the public language. The public convention governing the term "*ākāśa*" might be given as

"*ākāśa*" refers to the substratum of sound,

since this is how the term was introduced. However, in this rule, the descriptive condition "substratum of sound" is substitutable for any other co-extensive predicate[20]. It is an 'indicator' (*upalakṣaṇa*), which merely 'fixes the reference' of the term. Gadādhara's commentator Harinātha, defines an 'indicator' as something which, though mentioned in the linguistic rule, is not mentioned as that which regulates or delimits the way the interpreter thinks about or identifies the referent in the context[21]. Gadādhara himself relies mainly on one formal property of indicators, namely their extensionality: if p is an indicator for r, and p is co-extensive with q, then q is also an indicator for r (1927: 40, 41, 71, 105). This would be sufficient to show that one who regards the meaning invariant as an 'indicator' of the referent cannot claim that they are determinants of the 'guise' element, for the structure of a belief is, as we have seen, more finely grained. If "pot" and "thing-possessing-handles-etc." are co-extensive but non-synonymous terms, the structure of the two beliefs "Tom believes that [the] pot is blue" and "Tom believes that [the] thing-possessing-handles-etc. is blue" are distinct, even though their respective 'guises' (*viśeṣyatāvacchedakas*) are co-extensive.

When the Nyāya say that the description in the meaning-specification is a mere 'indicator', their intention, then, is that it simply fixes the reference of the term. The conventions for a term governed by such a rule do not impose any constraint on the way individual language-users pick out the reference. One might imagine the linguistic

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[20] *tatprakāraka-śābdabodhe tadaṃśe 'natiriktaprasaktatvarūpa-śakyatāvacchedeka-tvāvagāhitvenopalakṣite śaktijñānasya hetutvād*, (Ibid: 71).

[21] *upalakṣaṇatvaṃ pada-janya-bodhīya-viṣayatāvacchedakatvāvacchinna-śaktiviśayatā-śunyatvam*. (1929: 91).

community as comprising individuals each of whom identifies the referent of the name "Harry" in their own private fashion: for one, Harry is the brother of Sue, for another he is the man last seen in the laundrette, etc. What guarantees that they all understand the same name "Harry" in a public language is just that for each it is true to say that they know that "Harry" refers to Harry, and it is the statement of this common core fact which should be the linguistic rule for the name. A term which Gadādhara calls a "non-descriptive designator" is one whose reference is fixed in this way by the linguistic rule, whether this is homophonic or, as that of "*ākāśa*", non-homophonic. In insisting nevertheless that each interpreter must think of the referent under some mode or other, Gadādhara rejects the doctrine of bare acquaintance and 'logically proper' names advanced by the earlier Naiyāyikas like Udayana.

This then is one way of cashing out the idea that a reference-fixing clause can state the reference of an expression but at the same time show or display its ideolectical sense. But, by the same token, this idea is unable to give an account of the meaning of expressions whose sense is inter-subjective, expressions which if understood correctly have their reference singled out in a fixed way by any member of the linguistic community. It cannot, therefore, be an account of the meaning of the generic nominals. The radical Naiyāyika Raghunātha Śiromaṇi suggested a new way of approaching the problem, immune to this fault, which I would like now to discuss.

2.4 Raghunātha's 'Implicature' Theory

Raghunātha (c. 1500 C.E.) categorically rejects Vardhamāna's thesis, that the meaning-invariant is also a relatum of the meaning-relation, or, as we are now saying, that meaning specifications have two distinct components, one referential, the other recognitional. In his *Pratyakṣamaṇidīdhiti*, he says

> [t]he property of being the object of an interpretational thought is regulated by the meaning-invariant even if [the meaning invariant] is not [claimed to be] a meaning-relatum. Hence, the over-extension of the meaning relation to it can be eliminated. Even

> if the meaning-invariant is a meaning relatum, thinking of it as such does no [semantic] work (1930: 45).

Gadādhara explains what he means by this:

> [Raghunātha argues as follows.] When the property pothood is the 'guise' in an interpretational state, the regulatory factor is [its being] the meaning-invariant of the word ["pot"]. A meaning-invariant is [defined by Raghunātha to be] *the 'guise' under which the object is presented in the linguistic rule.* It is not [to be defined as] a meaning-relatum *qua* a qualifier, [where to be a meaning-relatum is to be] an object of the rule in virtue of being an object of interpretational-states [generated by the word]. [N.B. This is Gadādhara's own definition.] ... For this reason, the view of the author of *Pratyakṣamaṇidīdhiti* is that it is a mistake to [say that] the meaning-invariant is [itself] a meaning relatum (Ibid.: 61-2, my italics.).

A linguistic rule, in the Nyāya system, is a mandate having the following form: <Let it be that object x is thought about or identified when word w is heard>. Within this mandate, the object x is picked out by means of some description or other, in other words, under some guise. For example, the mandate might be <Let it be that Hesperus is thought about on hearing the word "Hesperus">. This is not the same mandate as <Let it be that Phosphorus is thought about on hearing the word "Hesperus">. Mandates, like beliefs, are intensionally individuated. If I instruct you to photograph Hesperus, which is the name given to Venus as it appears in the evening, but you go out in the morning and take the photograph of Venus in the morning (i.e. of Phosphorus), there is a sense in which you have not obeyed my order. For although you have photographed the right object, you did not photograph it *qua* Evening Star. The general point is that orders, mandates, decrees, and so on have an intensional structure. This is because orders, mandates, and so on are instructions to act, and action is sensitive to cognitive significance and not just referential content. Raghunātha's theory, as the later commentators make clear, is that the guise under which the referent is recognised by someone who correctly understands the expression is governed by the way it is picked

out in the mandate itself[22]. And since there is a single mandate for the entire linguistic community, every language-user must pick out the referent under the same guise. Hence the theory is applicable to generic nominals perhaps even more than to proper names.

It seems that Raghunātha is drawing a distinction between what is explicitly stated by the linguistic rules and their more general import. All that the rule explicitly states is which object is associated with the word, but its form indicates how the object is to be identified by the interpreter. We might develop his idea with the help of Grice's distinction between what is literally said and what is conventionally implicated. Grice notes that

> in some cases the conventional meaning of the words used will determine what is implicated, besides helping to determine what is said. If I say (smugly), "He is an Englishman; he is, therefore, brave", I have certainly committed myself, by virtue of the meaning of my words, to its being the case that his being brave is a consequence of his being an Englishman. But while I have said that he is an Englishman, and said that he is brave, I do not want to say that I have said (in the favoured sense) that it follows from his being an Englishman that he is brave, although I have certainly indicated, and so implicated, that this is so (1989: 25).

If we can borrow this idea to elaborate Raghunātha's view, we might say that the linguistic rule for a noun conventionally implicates, but does not say, how the referent is to thought about or identified by the interpreter. It only says, in the strict sense, which object is to be thought about. Raghunātha's view is thus that a noun's cognitive significance is not stated by the rule, but is conventionally implicated by it, and this is what it means to say that the sense is 'displayed' by the reference clause.

A modern Naiyāyika, Viśvabandhu Tarkatīrtha, seems to understand Raghunātha's position is substantially the same way. Viśvabandhu points out that when in a sentence, the same object or class of objects is picked out by means of two different properties, some further relationship between those properties is often implied:

[22]E.g. Adarśa (1892: 55): *śakyatāvacchedakatvaṃ ca ghaṭādipadajanyabodha-viṣayatva-niṣṭa-prakāratā-nirūpita-bhagavadicchīya-viśeṣyatāvacchedakatvarūpaṃ.*

> [C]onsider the sentence "A wealthy person is happy". This means that the person who is wealthy is happy, so both wealth and happiness appear here as qualifying the same individual, and thus as connected to some substratum. This leads to our awareness of some sort of causal relation between the two, wealth and happiness. That is, the same sentence will lead us to believe that wealth gives rise to happiness. When a relation appears in this way, it is said to appear as being dependent on the substratum (*dharmi-paritantrena bhāna*).(unpubl.: 13-14).

The sentence "A wealthy man is happy", and for that matter the sentence "An Englishman is brave", implicates a more general relationship between the two qualities, although this is an example more of conversational, than of conventional, implicature in Grice's sense. What we should note here is the particular description used in the sentence is of crucial importance. Suppose it happens to be the case that the class of wealthy men and the class of narrow-minded men are co-extensive. Then, while it is equally true or false that "A narrow-minded man is happy", there may be no corresponding implication of a relationship between the two.

Now a linguistic rule is itself expressed by a sentence in which the same set of objects is picked out in two different ways, for example when it states that a pot is in the content of interpretational thoughts derived from the term "pot". Viśvabandhu suggests that the same mechanism leads to the implicature of a more general relationship between being-in-the-content-of-interpretational-thoughts-derived-from-the-word-"pot" and being-a-pot. Thus formulated, the rule implicates that being-a-pot, rather than say being-a-thing-with-handles-and-conch-shaped-neck, is the mode under which the referent is to be picked out by the interpreter.

Does an appeal to implicature provide a way of cashing out the idea that in stating the reference of an expression, we show or display its sense? Gadādhara criticises Raghunātha's view in a terse and rather enigmatic passage (1927: 62). He suggests that there are certain terms whose linguistic conventions must be regarded as explicitly stating, and not merely implicating, the way their reference is to be picked out. Gadādhara notes that the author of the *Vaiśeṣika-Sūtra*, Kaṇāda, gives the word

"substance" (*dravya*) a technical meaning by introducing it *via* the rule "Let the word "substance" be construed as about an entity under the mode possessor-of-qualities"[23]. The point, presumably, is that such a rule fixes, not just the reference, but the descriptive content of the term as well. According to Gadādhara, however, there is no significant semantic difference between such terms, whose introduction can be traced to some explicit definition (c.f. *ādhunika-saṃketa*), and those which cannot, since the same account is given of what it is to understand them: to understand such a term is to know, in any given context, which object is its reference and how the reference is to be identified. As we shall see in later chapters, Gadādhara believes that his own proposal not only adequately explains the semantics of these noun phrases and singular terms, but can even be extended into an account of pronominal reference. If this is correct, then his account is to be regarded as preferable on the grounds of having greater explanatory power.

Raghunātha's theory could be criticised from another point of view. A theory of meaning aims to describe the linguistic conventions governing the use of a language. Presumably, this includes the rules governing the conventional implicature of sentences in the language. Raghunātha, however, appeals to those very rules in his theory, and so would seem to be guilty of begging the question. The notion of 'showing' or 'displaying' used in the claim that reference clauses display the sense of the expressions must not, on pain of circularity, be itself explained by appeal to linguistic concepts. One might try to defend Raghunātha against this charge by arguing that the implication to which he appeals is conversationally and not conventionally based. The more general point, however, is that a theory of meaning should not be, in Dummett's terminology, 'modest'; that is, it should not specify the sense or meaning of each expression in such a way that the meaning-specification is intelligible only to someone who already understands the expression. The sense of an expression is, in general, a body of

[23] *dravyapadād guṇavattvādinā dravyaṃ boddhavyam ityākāraka ādhunikaḥ kasya cit saṅketo dravyatvādyavacchinna-viśeṣyatā-sambandhena gṛhītas tatra tādṛśa-saṅketa-grahād dravyatvena dravya-bodhāpatter guṇatvādi-prakāraka-bodhānupapatteś ca durvāratvād.* (1927: 62).

information which grounds the capacity to recognise or identify its referent, and the idea behind proposals like that of Raghunātha is that, if the reference-clause itself draws upon the appropriate recognitional capacity, then it *eo ipso* 'displays' the expression's sense. This proposal is clearly 'modest', since someone who does not already know the meaning of the expression could not acquire mastery of it by coming to know such a reference-clause. Part of the point behind Gadādhara's 'two-component' conception is that the theory of meaning should contain an explicit specification of the recognitional capacities, and the information on which they are grounded, associated with the mastery of each expression in the language, and this is, perhaps, the deeper reason for his rejection of Raghunātha's approach.

Yet another criticism of Raghunātha's proposal follows from its heavy reliance on the supposition that there is, in a linguistic community, a distinct mandate for each sub-sentential expression, rather than a single convention governing the whole language. This supposition is highly questionable, as we will see in chapter 4.

The three theories so far discussed agree about one thing. They all accept that the invariant element in the meaning of a noun is to be explicated in terms of facts about the way interpreters identify the referents of expressions. Yet even this is controversial, and was sometimes disputed. I would like to look briefly at this theme in the Indian debate, and the implicit critique of Gadādhara's theory which it contains.

2.5 The Notion of a *Taṭastha* 'Identifying Trait'

The linguistic rule for a noun like "[the] pot" states that the reference of an utterance of "[the] pot" in any given context is a pot. Let us compare this with the linguistic rule for an indexical term like "now", which would state that "now" refers to the present time. In both cases, the linguistic rule fixes the reference of the expression by mentioning a feature, either of the context of utterance, or of some object in the context of utterance, which the referent possesses. The Indian semanticists pointed out that, although such expressions are indexical, and hence do not have a constant reference, the element in

their meaning which is constant is this feature, which is thus, in some sense, the 'linguistic meaning' of the expression.

Gadādhara's idea is that the feature is a 'guise', and hence a constitutive element in the thoughts expressed by sentences containing the expression. An earlier theory however, was that its role is not to be a constitutive part of the term's meaning, but an evidential clue to the speaker's intentions. The feature, it is claimed, helps the hearer to work out which object the speaker is referring to, but does not determine the fundamental mode under which it is to be thought about. The term used by these theorists to describe the feature is *taṭastha,* a 'trait' or 'characteristic'[24], as for example, a typical characteristic of earth is a certain sort of smell. It is also common to find the term *upalakṣaṇa* or 'indicator' used in this way. This usage, which differs from the 'reference-fixing' usage of Gadādhara mentioned above, goes back to Bhartṛhari, who illustrated the idea with an example. If I am asked, "Which house belongs to Devadatta?", I may reply, "It is that house with the crow sitting on its roof". The point is that here mentioning the feature having-a-crow-on-its-roof serves to distinguish the house in question from all other nearby houses. It supplies the hearer with some evidence on the basis of which she can make a correct identification.

I believe that Vardhamāna formulated his definition of a meaning-invariant with this idea partly in mind. The third clause of that definition states that the meaning-invariant is that which 'generates a presentation of the referent', and, immediately after giving the definition, he says

> some [words] are [called] 'indicator-terms' (*upalakṣaṇavatī*). The distinguishing quality [of an indicator] is that it is only the generator of a presentation of the referent, but is not part of the meaning [of the term]. (1933: 34).

For Vardhamāna, the best example of an indicator-term is "*ākāśa*". This term is conventionally associated with the description or feature 'being-the-substratum-of-

[24]This use of the term can be traced back at least to Udayana. See chapter 1.6. It is mentioned too by Śaṃkara Miśra (1917: 26).

sound', but this feature is not part of its meaning. The function of the feature is simply as a communicational aid, an item of information which the hearer can draw upon in isolating the speaker's intended referent. Perhaps his suggestion comes to this. Members of the linguistic community know that there is associated with the name "*ākāśa*" a descriptive feature "the substratum of sound", which they are able to draw upon as an aid in identifying the referent of the name. However, it is not required for understanding that a person should think of the referent under the description "the substratum of sound", nor should this description matter to the hearer's interpretation of the statement in which the name occurs, or to the truth-value assigned to it. The description is simply a community-wide body of information associated with the name. Another example might be the proper name "Homer", which allegedly bears a community-wide association with the description "the author of the Iliad and Odyssey". In spite of the association, however, the description does not give the meaning of the name: "Homer" refers to Homer (or to nothing), whether or not he wrote the Iliad and the Odyssey.

In later Nyāya, a kind of consensus developed about the correct way to understand the notion of an 'evidential trait' (*upalakṣaṇa*, 'indicator'). A trait is now seen as a sort of heuristic device, fixing the content of a thought without itself being a part of the content. Thus Viśvabandhu Tarkatīrtha (unpubl.) states that "that which is not a content of understanding due to an expression, but helps in cognising the referent of it, is called 'an indicator'", and Matilal says that "the indicator ... is only a catalyst-agent, being not relevant to what is said or what we may continue to say" (Matilal and Shaw, 1985: 389). The notion of an indicator has its primary application in communicative contexts, where one person is attempting to direct the thought of another towards a particular object. Citing an indicator, although failing to tell us how we are to think about the object, supplies us with at least some evidence as to which object is to be thought about. The 'evidential trait' belongs to the psycho-linguistic description of a hearer's ability to identify the speaker's referential intentions, but not to the word's semantics.

Indexicals like "now" and "I", as well as descriptive demonstratives like "that pot", are conventionally associated with a property which the referent of any utterance of the expression must possess. This property is the *pravṛtti-nimitta* or 'meaning-invariant' of the expression. It is what Evans, in *Varieties of Reference*, aptly calls a 'referential feature':

> The conventions governing referring expressions are such that, as uttered in a context of utterance, they are associated with a property which an object must satisfy if it is to be the referent of the fully conventional use of that expression in that context; I call such a property '*the referential feature* which the expression conventionally has in that context' (1982: 311).

The pronoun "I", for example, is associated with the property 'being the person making that utterance'. Likewise, the descriptive demonstrative "that ϕ" has as its referential feature the property 'being ϕ'. The doctrine we are considering in this section states that the linguistic role of the referential feature of a generic nominal is simply to be an evidential heuristic or 'indicator'. In particular, it has no cognitive significance; it is not the 'guise' under which the referent is thought about. This is, it appears, Evans' own view:

> No one can give an account of the constant meaning (= role) of a demonstrative without mentioning some relational property (relating an object to a context of utterance) which an object must satisfy if it is to be the referent of the demonstrative in that context of utterance, but the idea of this property plays no part in an explanation of what makes a subject's thought about himself, or the place he occupies, or the current time (1985: 95).

The 'evidential indicator' theorist argues instead that, on hearing a sentence like "I am F" or "That ϕ is F", the interpreter perceives, or already knows, a certain object to be the person making the utterance, or to possess the property ϕ, etc., and thereby comes to recognise that object to be the referent of the term in question. The function of the property is, in Evans' phrase, to "invoke antecedently existing information", namely the interpreter's knowledge that a certain object possesses that property. This information serves as the interpreter's evidence that that object is the object being referred to in a given context.

It seems, however, that we must distinguish between two kinds of referring expression. For some, especially the indexicals 'I' and perhaps 'now', the *taṭastha* theory may well provide the basis for a correct account of their semantics. The referential feature is merely an interpretational heuristic, an item of "antecedently available information" upon which the hearer can draw in identifying the intended reference. But for a large range of other referring expressions, those for which it is natural to say that they have 'descriptive content', and especially the generic nominals, the *taṭastha* theory cannot be sufficient. For these, the invariant feature ϕ is cognitively significant; in other words, ϕ has to be mentioned in the specification of the content of the thought expressed by "That ϕ is F". The existence of this distinction is the insight encoded in Vardhamāna's isolation of the class of 'indicator-terms'. The evidential theory may well describe those indexical terms like "I" which lack descriptive content, but cannot be a full account of the semantics of the referential uses of generic nominals.

2.6 Gadādhara's 'Two-Component' Theory of Meaning

When the earliest grammarians elected to take the nominal stem as the paradigm of a meaningful expression, they began down an unusually difficult path. Nominals are expressions with a very complex semantics, hiding delicate distinctions whose analysis leads to some of the most fundamental issues in the theory of meaning. One very important feature of the nominal stems is that they have a plurality of distinct semantic roles. This fact was first observed by Patañjali, who contrasted the role of the nominal "pot" in "[The/that] pot is blue" with its role in a sentence like "[The] pot is a utensil". Patañjali in fact argued that the significance of a nominal can be either particular or general, and he did so by pointing to the different grammatical rules or patterns of inference which the sentences sustain. Thus if the significance of the nominal is particular, one may validly infer from "[That_1] pot is blue" and "[That_2] pot is blue", to "[Those] two pots are blue". If the significance of the nominal is general, although no

such inference is valid, one may instead infer from "[The] pot is a utensil" to "All pots are utensils".

The older analysis of this distinction was to claim that in both cases the nominal functions as a singular referring expression, but that the type of entity to which it refers is different in the two roles. When the significance of the nominal is particular, the sentence in which it occurs is a singular predication of a particular. Thus, the logical form of "[That] pot is blue" is "Fa", where "F" stands for "is blue" and "a" for the particular pot to which the nominal refers in the given context. When the significance of the nominal is general, the sentence is again a singular predication, but this time of a universal or class. The logical form of "[The] pot is a utensil" is thus again "Fa", but now "a" stands for the property pothood, taken either extensionally or intensionally, and "F" stands for "is pervaded by utensil-hood".

Navya-Nyāya does not deny that there are 'generic' singular uses of nominals, as for example in "[The] whale is a mammal", but takes an altogether more sophisticated approach to the semantics of quantification. With the help of their technical language, the Navya-Nyāya are able to distinguish between the various readings of ordinary sentences involving nominals. From a sentence like "fire causes smoke", the Nyāya form first the expression "causehood-*conditioned-by*-smokehood", and then paraphrase the original sentence as "causehood-conditioned-by-smokehood *is delimited by* firehood". The notions of a conditioner (*nirūpaka*) and delimitor (*avacchedaka*) are technical notions in Navya-Nyāya logic. In the Appendix, I have shown that they translate into restrictors on the domain of first-order existential and universal quantifiers. Thus, the expression "causehood-conditioned-by-smokehood" translates into the open sentence "(∃x:smoke)(y causes x)", where ":f" indicates a restriction on the domain of quantification to things that are f. The paraphrase of the original sentence now translates to "(∀y:fire)(∃x:smoke)(y causes x)". So when the semantic role of a nominal is that of either a conditioner or a delimitor, its semantic value is a property/class, and its significance within the sentence is that of a bound quantifier with restricted domain. If

we take a sentence like "Britain's prime minister is unhappy", we can construe this either as predicating something of John Major, as saying that a British prime minister is unhappy, or as saying that all British prime ministers are unhappy.

A singular sentence like "[That] pot is blue" contains two nominals in apposition, and this indicates that there is still another distinction of semantic role to be drawn, the distinction between the referential and predicative uses of noun-phrases. In Sanskrit, a nominal sentence, that is, a sentence comprising two nouns in apposition, is a syntactically well-formed construction, even in the absence of any (explicit) verbal element. Many such sentences can be construed as having the logical form of an identity, in which the semantic role of each nominal is that of a singular referring expression. This is especially so when the two nominals are 'sortal terms', terms like 'man' or 'pot', which delineate a kind of object. Indeed, the general tendency to construe nominals as referring expressions was perhaps a factor in the development of the Vaiśeṣika system of ontological categories, in which even a term like "blue" is construed as delineating a sort of entity, *viz.* the blue-particulars or tropes (c.f. *guṇa*). The tendency was taken further by the Nyāya, who sometimes claimed that the term "blue" in "[That] pot is blue" *indirectly* refers to the pot, thus turning the sentence into an identity. Yet, even if this is so, indirect reference (*lakṣaṇā*) is a pragmatic phenomenon of speaker- or interpreter-reference, and cannot be used to get to the literal meaning of the sentence. The more relevant analysis of this sentence is as having a qualificand-qualifier structure, where the semantic role of "blue" *qua* qualifier-term is to predicate a certain property, blueness, of the object to which "[that] pot" refers. This predicative role comes to the fore in the Nyāya definition of truth: a sentence of such a form is true iff the qualifier property is in fact located in the qualificand (*tadvati tatprakārakatvam.* C.f. Mohanty, 1966: 9-41). The semantic value of the noun, when used predicatively as when used quantificationally, is a property/class. Indeed, first-order logic takes these two semantic roles to be the same, since we might translate a language containing restricted quantifiers into one without, by means of such equivalences as "All F are G" means "Anything

which is F is G", etc. In taking each of their conditioners and delimitors to be a 'qualifier' or *viśeṣaṇa*, the Nyāya implicitly accept this equivalence.

The distinction we are drawing between the referential and predicative uses of nominals is reflected in the intuitive asymmetry between the semantic roles of "pot" and "blue" in a sentence of the form "[That] pot is blue". The early Nyāya *tadvad*-theorists could only explain this asymmetry by saying that, when a nominal is used referentially, it is in fact a logically complex expression "that, which-is-F", comprising a purely predicative element together with a bare demonstrative. If this is correct, then "[That] pot is blue" is represented as "That x (x is a pot & x is blue)". This proposal in effect says that the semantic role of a nominal is always predicative, but when used referentially, there is an implicit accompanying demonstrative.

It was Gadādhara who pointed out the inadequacies of this proposal as an account of the semantics of nominals used as descriptive indexicals. The heart of the problem is that a sentence of the form "The/that F is G" cannot be used to assert that something is F - the function of the descriptive material 'F' is that of securing a reference, not of making a predication. To borrow Strawson's term, the sentence "That F is G" or "The F is G", where the description is taken to be a referring expression, *presupposes* but does not state that something is F. The early Nyāya theory took no account whatsoever of the phenomenon of presupposition.

The task Gadādhara set himself, in constructing a theory of meaning for the nominal stems, was therefore two-fold. First, he sought an account of the referential use of nominals, of what in English would be descriptive demonstratives or referentially-used descriptions, which did justice to the phenomenon of presupposition, and which recognised, as Strawson puts it, "that the descriptive function of the expression concerned is wholly at the service of this [individuative] function, a function which is complementary to that of predication and contains no element of predication in itself" (1974: 66). Having said this, Gadādhara did not take recognition of the existence of two distinct semantic roles, one individuative or referential, the other predicative, to entail that

the two roles are entirely independent. Recognising the asymmetry between "F" and "G" in the sentence "That F is G" should not leave us with no account, for example, of the tautologous character of "That F is F", or of the validity of inference patterns like the one from "That F is G" and "All Fs are H" to "That F is H". Gadādhara sought to find, and this is the second desideratum, a theory of meaning in which each nominal has but a single meaning clause. From this single clause, it should be possible to derive all the semantic properties of the nominal for whose clause it is.

Following Vardhamāna, Gadādhara's strategy is to introduce an extensional meaning relation which obtains between expressions and ordered pairs of objects. For a nominal, it takes the form

$$\text{Means}\ (c, \text{‘f’}, \langle x, p\rangle),$$

where 'f' denotes a nominal expression, 'p' a guise-property, 'x' ranges over objects, and 'c' over contexts. The meaning clause for a nominal should specify its meaning in every context. For a generic nominal, the guise-element is constant, and is named by use of the abstraction-suffix: thus p = f-hood. From the doctrine that the invariant guise-element delimits the sphere of reference of the nominal, it follows that

$$(\forall c)(\forall x)(\text{Means}\ (c, \text{‘f’}, \langle x, \text{f-hood}\rangle) \rightarrow Fx\ ),$$

where 'Fx' signifies that x is in the extension of f-hood. For example, the meaning-clause for the nominal "pot" would be

$$(\forall c)(\forall x)(\text{Means}\ (c, \text{‘pot’}, \langle x, \text{pothood}\rangle) \rightarrow \text{Pot}(x)).$$

In a clause like this, a clear distinction is drawn between the descriptive content of the term and descriptive material whose role is simply to fix the reference of the term.

To turn this into a sufficient condition, we must introduce the idea of some object being salient in the context, perhaps in virtue of an act of demonstration or *via* other contextual clues. Thus:

$$(\forall c)(\forall x)(\text{Means}\ (c, \text{‘f’}, \langle x, \text{f-hood}\rangle) \leftrightarrow Fx\ \&\ \text{Sal}(c, x, \text{f-hood})).$$

It might be that when the notion of salience is properly analysed, an object can be salient only if it is F, in which case the first clause is superfluous. Davies (1982), for example,

argues that this is so since a pure act of demonstration does not discriminate between a continuant-object, a temporal slice of the object, a front surface of the object, a mereological union of parts of the object, and so on and so forth. The notion of demonstration, therefore, is relative to a sortal property. Presumably, an object cannot be demonstrated under the sortal pothood unless it is a pot, and so this relativised notion of salience renders superfluous the first clause.

On the basis of this one meaning clause, we can now construct both reference and predication clauses for the nominal. Clearly, the reference of the nominal is the first element in the ordered-pair. Thus:

Ref(c, ‘f’, x) iff Means (c, ‘f’, <x, f-hood>).

Similarly, if the nominal is used predicatively, its extension will be that of the guise-element:

Pred(c, ‘f’, F) iff Means (c, ‘f’, <x, f-hood>).

In this way, Gadādhara’s two-component theory shows how to give an account of both the referential and predicative uses of a nominal. We can use these reference and predication clauses to derive the truth-conditions of sentences containing nominals. As noted above, a nominal sentence has two readings. In one reading, represented by “f = g”, both nominals are used as referring expressions, and the sentence is an identity. For example, “[That] pot [=] [that] substance”. A nominal sentence can also take the logical form of a singular predication, in which the first nominal is used to make a reference, but the second a predication. For example, “[That] pot [is] blue”. I will represent this as “f.g”. We should not, however, specify the truth conditions of these sentences by means of such axioms as

True(c, “f = g”) iff (∃x)(∃y) (Ref(c, ‘f’, x) & Ref(c, ‘g’, y) & x=y)

for the reading of the nominal sentence as an identity, and

True(c, “f.g”) iff (∃x)(∃G)(Ref(c, ‘f’, x) & Pred(c, ‘g’, G) & Gx)

for the second, subject-predicate reading. This way of specifying the truth-conditions makes the existence of a reference part of what the sentence asserts, and therefore ignores the phenomenon of presupposition. The point is clearest if we insert a negation:

according to this analysis, the sentence “$\neg$(f.g)” is true in c if ‘f’ fails to refer in c. If, for example, there are no pots in the given context, an utterance of “[that] pot” fails to refer in that context, and, according to this proposal, which represents the view of the *tadvat*-theorists as well as Vardhamāna, the sentence “[That] pot is blue” comes out false.

The desired result is that a sentence only has a truth-value if the embedded referring expressions have referents, and the way to achieve this is by means of the ‘conditional assignment’ of truth-conditions. Following this method, the two readings of a nominal sentence are assigned truth-conditions as follows. The identity sentence is assigned truth-conditions by means of an axiom of the form

$$\mathrm{Ref}(c, \text{‘f’}, x) \;\&\; \mathrm{Ref}(c, \text{‘g’}, y) \rightarrow \mathrm{True}(c, \text{“f = g”}) \text{ iff } x = y.$$

The truth-condition for the subject-predicate reading is given by

$$\mathrm{Ref}(c, \text{‘f’}, x) \;\&\; \mathrm{Pred}(c, \text{‘g’}, G) \rightarrow \mathrm{True}(c, \text{“f.g”}) \text{ iff } Gx.$$

This gives us the truth-conditional or ‘referential’ content of sentences containing nominal expressions. In Gadādhara’s theory, however, the meaning of a sentence is not identified with its truth-conditions. For since the linguistic conventions governing a nominal like “[that] pot” determine, not just which object is its referent but also how its referent is to be identified or thought about, that is, the ‘guise’ under which the referent is to appear, this too is an element in the meaning of the sentence. The meaning or ‘assertoric content’ of a sentence is equated with the structure of the interpreter’s thought (*śābdabodha*), or rather with those aspects of the content which are common to anyone who, in that context, interprets the sentence. The application of his meaning-relation to sentences therefore issues in sentence meaning specifications of the form

$$\mathrm{Means}\,(c, \text{“f = g”}, \langle(x, =, y), (\pi, =, \sigma)\rangle)$$

where the first member of the ordered pair represents the referential (Russellian) content of the sentence, and the second member the ‘guises’ under which the elements of the referential content are individuated. In Gadādhara’s theory, then, the meaning or

'assertoric content' of a sentence is more finely individuated than the truth-conditional content.

Gadādhara's theory of meaning differs from a Fregean account in a number of ways. McDowell describes something like Gadādhara's 'two-component' picture when he says:

> It may seem that one could capture the effect of a Fregean conception of *de re* thoughts in terms of a special kind of Russellian proposition: Russellian propositions with both *res* and characters [i.e. functions from contexts to objects] as constituents. On this view, an ordered pair of *res* and character might represent a *de re* sense: such an item certainly depends on the *res* for its existence, and it determines, but is not determined by, a Bedeutung of the appropriate sort, namely the *res*. (1984: 104).

The main difference between the two-component model and the '*de re* sense' account is that the second component, comprising the 'guises' under which the referents are identified, are common (c.f. *anugama*) to all thoughts about objects of a certain type, whereas there is a distinct *de re* sense for each object. The guise-component does not *determine* the referential component. McDowell's objection to the two-component model, however, is that it violates another important Fregean doctrine, that "thoughts are senses with senses, not Bedeutungen, as constituents". For Frege, the reference of a complex expression is a function of the references of its parts, and the sense of a complex expression is a function of the senses of its parts. This Fregean separation would collapse, however, if there are sentential contexts which are functions from both content and character to content. We might, for example, regard the truth-value of the sentence "Galileo believed that the earth moved" as a function, not just of the referents of "the earth" etc., but of the 'guises' under which those referents are presented. Frege's doctrine that in belief contexts, the reference of an expression is its ordinary sense, looks, from this perspective, to be a rather ad hoc way of preserving the Fregean conception.

McGinn develops a two-component theory of semantic content in his paper, "The Structure of Content" (1982). He argues that the notion of meaning serves twin

purposes - it is that in virtue of which sentences are the vehicles of truth-value, and it is that the knowledge of which explains our ability to use language. Correspondingly, a meaning specification has two components. The first component, as in Gadādhara's account, is a theory of reference and truth for the language. The second component is a specification of the role of semantic content in the explanation of linguistic use, and this, McGinn claims, is an "entirely intra-individual property", which he calls the 'cognitive role' of the expression. McGinn's two components, then, represent a factorisation of the purely extrinsic and the purely intrinsic elements of semantic content. The point of this proposal is that since, as Putnam's twin-earth examples are supposed to show, the meaning of certain terms are not determined solely by what is 'in the head', such as a traditional Fregean criterion for something to be the reference, a meaning specification must comprise both a specification of the intra-individual element and also a specification of the extension of the term.

The Nyāya 'guises', however, are not purely intrinsic elements of content. At least in the case of a natural kind term, for example "[The] cow", the guise under which the interpreter thinks of the referent is not an intra-individual 'gestalt' of the natural kind, but the sortal property cowhood itself. The Nyāya here introduce the idea of a non-conceptual (*nivikalpaka*) acquaintance with at least some natural properties or universals, through which such properties can become content-constituents. Since the non-conceptual acquaintance with a universal depends on being presented with some of its instances, this is in effect an extension-involving account of our possession of sortal concepts. Gadādhara distinguishes such terms from 'one-criterion' terms for which there exists an analytical definition. He notes that the term "beast" (*paśu*), which is the usual example of one of Udayana's logically complex nouns (*aupādhikī*), is synonymous with the description "animal with a tail and a certain sort of body hair", and that this fact is reflected in the non-homophony of its associated meaning-specification (1927: 50). To understand such a term is just a matter of knowing with which description it is analytically tied. The account of what it is to understand a natural kind term (*naimittikī*)

is quite different, however. It proceeds, not in terms of knowledge of a distinguishing criterion, but rather in terms of a capacity to recognise instances of the kind as such when presented with them. The picture is roughly this. One is presented with a number of objects belonging to a certain kind, and is told "These are called cows". Through the ensuing direct (*nirvikalpaka*) acquaintance with the kind, one acquires the ability to recognise other objects as belonging to the same kind as those initially presented. For a natural kind term, then, the second component in Gadādhara's theory of meaning is a specification of that kind the acquaintance with which grounds the appropriate recognitional capability.

The account of our understanding of natural kind nominals is more often given by Nyāya in terms of the notion of 'analogical identification' (*upamāna*)[25]. A person who does not know the meaning of the term '*gavaya*' might be told that a *gavaya* is an animal rather similar to a cow. Coming across an object which fits this description, she judges "This is a *gavaya*". The analogising description "an animal similar to a cow" functions here as an item of collateral information, enabling the person to identify for the first time an object belonging to the right sort. Knowledge of this information does not itself constitute linguistic competence with respect to the term "*gavaya*". That comes about only when the person becomes directly acquainted with the kind, having used the collateral information to identify one of its instances. So here again, linguistic mastery consists, not in the knowledge of any "intra-personal" criterion, but in a certain recognitional capability.

Wiggins has, in a number of articles, argued that the sense of a natural kind term, which he calls a 'recognitional conception', is object-involving, since "[w]hen we fix the sense of a [natural kind] expression ... what we need to impart to one who would learn the sense is both factual information and a practical capacity to recognise things of a certain kind ...[i.e.] an identificatory or recognitional conception" (1993: 204). Following Putnam, he claims that the recognitional conception associated with a natural kind term

[25]See, for example, Uddyotakara under *Nyāya-sūtra* 1.1.6.

"is unspecifiable except as the conception of things like this, that and the other specimens exemplifying the concept that this conception is a conception of", and further suggests that Evans' notion of a "way of thinking about" a kind, Leibniz's doctrine of clear but non-distinct ideas, and even Putnam's own notion of a "stereotype", when properly understood, are all accounts of recognitional conception. If I have construed the implication of the doctrine of "analogical identification" correctly, it seems that the Nyāya theory of a natural kind 'guise', in spite of certain dissimilarities, could also be regarded in this way.

Gadādhara's theory of meaning solves the problems for which it was designed. It offers a unified account of the various semantic roles - referential, predicative and quantificational - into which nominal expressions are capable of entering. It also accommodates the phenomenon of presupposition, which the earlier Nyāya theories were unable to do. Although Gadādhara's theory is not Fregean, neither, following the introduction of a notion of assertoric content more finely grained than that of referential content, can he be described as having a pure referential theory of meaning. Meaning is a complex, having both a referential element, which grounds the truth-theoretic and inferential properties of sentences, and a 'guise' element, which accounts for the cognitive significance of sentences and their use in ascribing beliefs and other mental attitudes.

In the second section of the *Śaktivāda,* Gadādhara applies the theory of meaning developed in the first part to a wide variety of referring expressions, especially the nominals, proper names, descriptive names like "*ākāśa*", and certain pronouns. Indeed, the main thesis of this work is that the 'two-component' theory is capable of providing a unified account of all the main kinds of referring expression. Suppose "n" is a proper name of an object a. Then the meaning clause for "n" in Gadādhara's system is

$$(\forall c)(\forall x)(\exists \pi)(\text{ Means } (c, \text{“n”}, <x, \pi>) \text{ iff } x = \text{Ex}(\pi) = a,$$

where ‘c’ ranges over members of the linguistic community and ‘π’ over guise-properties. For each person, there is a guise under which they recognise the object. For a descriptive name like “*ākāśa*”, the clause would be non-homophonic:

(∀c)(∀x)(∃π)(Means (c, “*ākāśa*”, <x, π>) iff x = Ex(π) = the substratum of sound.

The description ‘substratum of sound’, occuring on the right-hand side of the clause, fixes the reference of the term but not its guise-element. An earlier Naiyāyika, Jagadīśa, however, argued for a version of the Description Theory of Names, that the reference of a name is determined by a single community-wide description. For the name “*ākāśa*”, his theory would be that

(∀c)(∀x)(Means (c, “*ākāśa*”, <x, sound-substratum-hood>) iff x = the substratum of sound.

It is a consequence of this view that the link sentence “*ākāśa* is the substratum of sound” is a tautology, but Jagadīśa explicitly recommends a meta-linguistic reading of this sentence, as asserting that the term “*ākāśa*” refers to the substratum of sound[26]. In the case of ordinary proper names such as “Devadatta”, Jagadīśa suggests that the description is given by the clause “the thing x such that x = Devadatta”. Jagadīśa apparently goes so far as to say that for every individual, there is a peculiar property unique to it, the property of being that individual (*tadvyaktitva;* compare the notion of haecceity). One need not, however, agree with him about this in order to accept such a descriptional theory of names. There are, however, many well-known objections to such theories, which we need not go into here.

For a range of referring expression, then, Gadādhara's approach has a high degree of theoretical unity. Certain sorts of pronominal usage present especially difficult problems. Indeed, one of Gadādhara's principal motivations in developing the ‘two-component’ theory was his interest in the semantics of pronouns, and the account of

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[26]*sahaprayogasyākāśapadavacyaḥ śabdavān ityarthakatvenāpyupapatter*. (1930).

pronominal reference which results is extremely elegant. It is to the semantics of pronouns that I therefore now turn.

3

Pronouns, Anaphora and Speakers' Intentions

The discussion of pronominal reference in the *Śaktivāda* is interesting because it can be seen as involving a natural extension of the ideas about nominal semantics developed in the previous chapter. We will see in particular that Gadādhara's use of a two-component meaning predicate enables him to construct a theory of pronouns which significantly improves on the proposals of earlier Navya-Nyāya authors. We should note, however, that Gadādhara does not consider pronouns to be univocal expressions. I begin, therefore, by reviewing his comments on pronominal syntax, and isolating the use in which he is most interested.

3.1 The Syntax of Pronouns

There are in Sanskrit four pronouns (*sarvanāma*, lit. 'name for anything'), not including the reflexive, interrogative and relative pronouns. They fall into two pairs: **etat** 'this', and **tat** 'that, it'; and again **idam** 'this, and **adaḥ** 'that'. The first member of each pair is usually said to signify what is near at hand (*atisaṃkṛṣṭa*), the second what is more remote (*vyavahita*) (c.f *Vivṛtti* on Gadādhara, 1929: 160). The difference between the two pairs is not of interest here. Gadādhara says that **etat** 'this', **idam** 'this', and **adaḥ** 'that' are demonstrative pronouns, 'this' referring to a perceptually present object, and **adaḥ** 'that' to something which is out of sight (*parokṣa*) (1927: 179-180). The uses of **tat** 'that, it', however, are more complex and varied. Gadādhara claims that there are three distinct uses of this pronoun, and some of his commentators add a fourth[1]. In the first and by far the most important use, the pronoun is correlated with an antecedent

[1] e.g. Ādarśa: *tatpadaṃ prakramyamāṇa-prakrānta-prasiddhānubhūtārtha-parāmarśaka-bedhāc caturdhā bhavati,* (1892: 162).

noun, which may occur in the same sentence or in some previous sentence. Gadādhara's example of the sentence-internal case is

(1) [The] pot is here - bring it (*ghaṭa ihāsti tam ānaya*),

in which the pronoun is correlated with the preceding noun "(the) pot". As an example of the second case, Gadādhara quotes a verse from the *Raghuvaṃśa*[2], in which the pronoun "he" is correlated with the name "Vaivasvata" mentioned in an earlier verse (*pūrvaprayuktapada* - ibid.: 177). This pronoun is called the *prakrānta-parāmarśaka* pronoun, a pronoun whose construal depends on a previously uttered word or sentence. In other words, the pronoun is here used anaphorically (*anvādese*). It is the semantics of the pronoun as it occurs in sentences like (1) that we will be mainly concerned with in this chapter.

The second recognised use of the pronoun **tat** 'that, it' is as a correlative to the relative pronoun **yat** 'which'. An example of this use would be the construction

(2) Bring that which is here (*tam ānaya ya ihāsti*).

Gadādhara says that when the pronoun is so used, the sentence must contain a relative pronoun, since a sentence like "Bring that the pot is here" (*tam ānaya ghaṭa ihāsti*) is not grammatically well-formed. The pronoun "that" in (2) is called the *prakramyamāṇa-parāmarśaka* pronoun, i.e. a pronoun whose syntactic construal depends on something else (*viz*. a relative pronoun) in the currently uttered sentence.

Gadādhara notes that a pronoun is occasionally used when the object signified is well-known or famous (*prasiddha*). For example

(3) That (well-known) phase (of the moon) is the lovely one (*kalā ca sā kāntimatī*),

where the use of the pronoun suggests that the phase in question is known to everybody (*jagatprasiddha* - *Ādarśa*, 1892: 163). Speijer, who also notes this use, remarks that it resembles the Latin *ille*, and cites as another example, "*tat koṭimatkuntiśamābharaṇaṃ madhonaḥ*, the renowned thunderbolt, Indra's attribute" (1886: 206).

[2] *tadanvaye śuddhimati prasūtaḥ śuddhimattaraḥ*
dilīpa iti rājendur indu-kṣīrānidhāv iva. Raghuvaṃśa i.12.

A fourth use, isolated by his commentators (1929: 159, 1882: 163) but not by Gadādhara himself, is illustrated by the sentence

(4) Those eyes are (now) casting around disconsolately (*te locane pratidiśaṃ vidhure kṣipanti*).

The pronoun is held here to refer back to the person's eyes as they were previously known, presumably calm. This is dubbed the *anubhūta-parāmarśaka* pronoun, a pronoun 'which refers to something already perceived'.

3.2 The Semantics of Pronouns

Although various authors, especially grammarians, had discussed the syntax of pronouns, Gadādhara is to my knowledge the only Indian philosopher to have analysed systematically their semantics, an observation which makes the length and detail of his analysis all the more remarkable. About the second, third and fourth uses as distinguished above, however, he has little to say: virtually all his remarks are directed at the first, anaphoric, use. Gadādhara defends three principal claims about pronouns so used. The first claim is that pronouns are referring expressions. As such, their reference is of course token-reflexive, depending on certain aspects of the context in which they are uttered. It seems that Gadādhara fails to recognise the existence of 'bound' pronouns, that is, of pronouns having quantifier antecedents and used in a manner analogous to logical bound variables. For example, in the sentence "Every potter loves his pots", the pronoun "his" is bound by the antecedent quantifier. Most authors would now agree that it is a mistake to construe pronouns so used as referring expressions[3]. Not all pronouns, however, have quantifier antecedents, and even if we restrict our attention to those that do, it is widely accepted that not all such pronouns are bound (see below). My strategy will be to interpret Gadādhara as constructing a theory just for the pronouns exemplified by the example he analyses, "[The] pot is here - bring it", not for

[3] See Geach (1980) for the classic defence of this claim.

all kinds of anaphoric pronominal use. Gadādhara's first claim is that *this* pronoun is used referentially.

The second doctrine is much more controversial. It is the claim that there is a sense in which pronouns have a descriptive content. Gadādhara claims that in general the descriptive content of a given utterance or occurrence of a pronoun will be that of the antecedent noun with which it is correlated. Thus, in the above example, the pronoun "it" refers to an object under the 'guise' pothood. He appears to regard this as a fact about linguistic competence:

> It is not possible for someone, having heard and understood the sentence "[The] pot is here - bring it", to entertain a doubt of the form "Does the specific action of bringing [which I have been directed to perform] concern something which is a pot or not?". The impossibility of this doubt is confirmed by everyone's [linguistic] intuitions[4].

In other words, one who understand the sentence correctly identifies the referent of the pronoun in a particular way, namely as a pot. As we saw in the last chapter, Gadādhara rejects the idea that objects can be 'given' to us in a pure, unqualified state, and with it the doctrine of 'logically proper names', terms whose meaning consists solely in their standing for an object with which we are acquainted.

An initial reaction to this claim might run as follows. Geach has drawn attention to what he calls "pronouns of laziness", pronouns which go proxy for their antecedent noun-phrases, and "have no point beyond variety, perhaps elegance, of expression" (1980: 151). He suggests that the pronoun "he" in "Smith broke the bank at Monte Carlo, and he has recently died a pauper" is a pronoun of laziness, because it is eliminable without any alteration of meaning by replacing it with its antecedent, "Smith". Since such pronouns inherit the descriptive content, if any, of their antecedents, it might be thought that Gadādhara is offering an analysis of such uses. As will become apparent, however, the pronoun in (1) is not treated in Gadādhara's theory as a mere 'stylistic variant' of its antecedent. Once again, I believe we must acknowledge that there

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[4] *atra ghaṭo 'sti tam ānayetyādi-vākya-janya-ghaṭa-karmakānayanādi-bodhāntaraṃ viśiṣṭānayanaṃ ghaṭa-karmakaṃ na veti saṃśayānutpādasya sarvānubhavasiddhatayā durapavahnatvāt.* (1927: 97).

are pronouns of laziness, but question, as some recent authors have, whether the pronoun "it" in sentences like (1) is of this sort.

It follows from the second doctrine that the alleged descriptive content of a pronoun will itself be token-reflexive. As we shall see, this enables Gadādhara to draw a distinction between the notion of an expression's having a certain descriptive content and the notion of its having a constant element (*anugama*) in its meaning. For an ordinary nominal, the invariant meaning element is precisely the descriptive content. The main point of Gadādhara's study of pronominal reference is to show that these are nevertheless two quite distinct notions. The point can be made sharper using Kaplan's notion of 'character'. The character of a pure demonstrative "that" is a function from contexts to objects. Kaplan (1989a) notes that the character of a proper name is a constant function, and hence the distinction between character and content virtually collapses for proper names. Now, Gadādhara's analysis of nominals can be summed up as asserting that the character of a nominal like "[the/that] pot" is a function from contexts to ordered pairs (x, π), where 'x' ranges over the possible referents of the term, and 'π' is a constant. The character of a pronoun is again a function from contexts to ordered pairs, but now the descriptive or guise element 'π' is itself variable. Since, in the case of a nominal, the function from contexts to descriptive contents is constant, the distinction between them virtually collapses. But if Gadādhara is right that pronouns like the one in (1) have a descriptive content, then the two notions must be kept separate. I will show below how a two-component meaning theory is rich enough to express this distinction.

Gadādhara's third claim is that, in spite of the syntactic correlation between the pronoun and its antecedent noun, it is not the reference of the antecedent noun which is criterial in fixing the reference of the pronoun, but the speaker's referential intentions (*vyaktṛ-buddhi*) at the time of utterance. The role of the antecedent clause or sentence is to be regarded in the first instance as evidential: it is the primary means by which the hearer identifies the speaker's referential intent.

In the case of the pronoun 'this', the same role is likely to be discharged in another way, for here, Gadādhara remarks, the criterial thought is perceptual. It might now be the case, although Gadādhara does not himself say this, that the object perceived by the speaker is indicated by a pointing[5]. This suggestion is in accordance with the following comment by Kaplan:

> In *Demonstratives* I took the demonstration, "typically a (visual) presentation of a local object discriminated by a pointing", to be criterial for determining the referent of a demonstrative.....I am now inclined to regard *the directing intention*, at least in the case of perceptual demonstratives, as criterial, and to regard the demonstration as a mere externalisation of this inner intention. (1989: 582).

It is a consequence of this third feature of Gadādhara's account, then, that the widely recognised distinction between anaphoric and deictic uses of a pronoun is not regarded as marking an ambiguity in the semantics of pronouns, though it is sometimes marked syntactically due to the existence of the exclusively deictic pronoun 'this'[6]. The distinction between the deictic and anaphoric uses is merely in the sorts of contextual feature on which the hearer must depend in ascertaining the speaker's intended reference. A deictic pronoun will be accompanied by an act of pointing, from which the hearer is able to ascertain that a certain object in the perceptual environment is the object to which the speaker intends to refer, and hence which is the semantic referent of the pronoun. Analogously, an anaphoric pronoun will be uttered in the context of a larger sentence, and the information expressed by this sentence will perform an evidential function equivalent to that of the act of pointing.

Gadādhara's account of the anaphoric pronoun therefore sharply disagrees with those who account for the role of "it" here via a grammatical co-reference rule, stating that a pronoun corefers with its antecedent noun. In his theory, the anaphoric link between a pronoun and its antecedent is not sustained by a semantic coreference rule of

[5] Pāṇini (*Pāṇini-sūtra* 2.4.32-3) notes a difference in stress when a pronoun is used deictically from when it is used in anaphora (*anvādeśe*). C.f. Speijer, (1886: 204).

[6] *idam-etadoḥ pratyakṣa-buddhi-viṣaye śaktiḥ*, (1927: 179).

this sort, since the antecedent sentence merely adduces evidence for the speaker's referential intention, and it is the speaker's intention which is criterial in fixing the reference of the pronoun. This feature of Gadādhara's account invites a comparison with Lasnik's "pragmatic" theory of coreference. I will explore this point of contact between the two theories further in the next section.

The central problem in the construction of a semantic theory for pronouns is by now a familiar one. Since a pronoun may refer, on each occasion of its use, to a different entity, the problem is how to give a meaning clause which does not result in the pronoun being a radically homonymous expression. Gadādhara begins his discussion by asserting categorically that this would be a mistake: a pronoun is a nonhomonymous word with a single meaning clause[7]. We have already seen the Naiyāyikas' general strategy for solving this problem, the postulation of constant elements in the meaning of token-reflexive expressions. This constant element is what they call the *anugama* 'consecutive character' of the expression. For a noun-phrase, the constant element was identified with the descriptive content. However, the peculiar feature of pronouns, for Gadādhara, is that the token-reflexivity infects not just the reference of the expression but its descriptive content as well, and this complicates the account.

The hypothesis that in many cases pronouns do have a descriptive content is used by Gadādhara to refute the theory of pronominal reference which was current among his Naiyāyika predecessors.(c.f Gaṅgeśa 1901: 617, and Jayadeva's *Āloka*). According to this theory, just as a noun like "[the] pot' refers to various individuals on the basis of the descriptive feature pothood, a pronoun refers to various individuals on the basis of the descriptive feature "the object being thought about by the speaker" (*buddhisthatva*), or better "the object the speaker intends to refer to". According to this theory, the semantic clause for the pronoun "that/ it" is

> $(\forall c)(\forall x)$ Means(c, "it", x) iff x is the intended referent of the utterer of c,

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[7] *sarvanāma-padānām api śakter aikyān na nānārthatā*, (1927: 96).

where the contextual variable 'c' now ranges over utterances, and 'Means' is a reference relation. This clause would certainly give the constancy or 'consecutive character' for the varying referents of the pronoun, and it links, as does Gadādhara, the reference of a pronoun with its utterer's referential intentions. It is otherwise deeply flawed. If we take the phrase "the intended referent of the utterer" as an indicator (*upalakṣaṇa*), that is, as merely fixing the reference, then it fails to ascribe to pronouns a descriptive content at all. It would be acceptable as a clause for demonstrative pronouns, but not, according to Gadādhara, for anaphoric pronominal uses. If, on the other hand, we take the phrase "the intended referent of the utterer" to 'give the meaning' of the pronoun, then the proposal implies absurdly that "[The] pot is here - bring it" means the same as "[The] pot is here - bring the object the speaker intends to refer to". This cannot be right since it offers no account at all of the anaphoric link between the pronoun and its antecedent.

Gadādhara considers a modification of this approach which tries to avoid these objections. When the speaker intends to refer to an object, she intends to refer to it in a certain way or under a certain guise. The speaker's choice of antecedent reveals to the audience which way the object is intended to be referred to, or the sort of object which is the intended referent, for it is generally true that speakers choose their antecedent descriptions with the aim of manifesting the way they intend the referent to be identified[8]. As Evans remarks, "if [the hearer] understands the remark, he will know which object is meant; and in the normal course of events (i.e. without assistance from others, etc.), he will know which object is meant only if he thinks of it in the particular way intended by the speaker" (1982: 315-6). It would thus seem that the speaker will choose such an antecedent clause as not only singles out the intended referent, but manifests the way it is to be identified. The new suggestion is that the descriptive content

[8]The idea of a complex speaker-demonstation is employed by Taylor, (1980: 192) in constructing truth-theories for indexical languages. He notes that "in many cases, a speaker apparently demonstrates his object as an F, supplementing any indicative gestures with a specification of some feature F the object possesses".

of a pronoun is determined by the 'guise' in the speaker's referential intention[9]. In the Nyāya technical language, the property of being the guise under which the speaker intends to refer to the referent is, on this proposal, the *śakyatāvacchedakatāvacchedaka* 'delimitor of the property of being the delimitor of the relational abstract referenthood'. We might call it a "second-level" meaning invariant. Gadādhara's objection to this suggestion is predictable: if it were correct then his example means the same as "[The] pot is here - bring that which the speaker intends to refer to under the guise pothood". Yet what it should mean is just "[The] pot is here - bring [the] pot", where the qualifier pothood appears without further qualification[10].

The problem with both these suggestions is not hard to find. They both take the consecutive feature "being the speaker's intended referent" as itself part of the descriptive content of the pronoun. It is given the same status in these proposals as the consecutive character pothood has in the semantic clause for "pot". This observation suggests a solution. I noted in the last chapter that certain theorists claimed that proper nouns do not have a descriptive content. They argued that the semantic clause can be construed as merely fixing the reference of the noun, and they introduced the notion of an "indicator feature" (*upalakṣaṇa*) with the idea that when, in the reference clause, the referent is described by an indicator, the indicating description should not be seen as entering the descriptive content of the noun. Now, Gadādhara wants to say that pronouns do have a descriptive content, but that in the meaning clause which assigns the pronoun a descriptive content π, the way π is itself picked out or described is not to be regarded as another part of the pronoun's descriptive content. So the natural idea, which Gadādhara now introduces, is that the phrase "the guise in the speaker's referential intention" merely indicates the feature π, i.e. it "fixes" the descriptive content of the pronoun. The earlier Nyāya theorists were unable to express this distinction, but

[9] *buddhisthatvaṃ prakārībhūtaghaṭatvādīnām anugamakam*, (1927: 97). Note the Ādarśa: *buddhisthatvam = buddhiviṣayatāvacchedakatvam*, (1892: 86).

[10] *svarūpato ghaṭatvādi-prakāraka-śābdabodha*, (1927: 98). Note that the term "*paśu*" "beast" is a word for which there is alleged to be both a *śakyatāvacchedaka* (the tail etc.) and a *śakyatāvacchedakatāvacchedaka* (tailhood etc.) - (ibid: 101).

Gadādhara's two-component meaning theory has the expressive power to do so. The new meaning clause can be written as

PRON$_{\textbf{Gadādhara}}$ $(\forall c)(\forall x)(\forall \pi)$ Means(c, "it", $<x, \pi>$) iff the utterer of c intends to refer to x under the guise π[11].

The two-component meaning relation enables us logically to distinguish between the role of the description "the speaker's intended referent" and the description "π" in the meaning specification. The former 'fixes the reference' of "π", and π is the descriptive content of the expression "it" as used in the given utterance. Gadādhara's theory agrees with Geach that each occurrence of the pronoun is substitutable for a noun phrase, but his point is that the relevant noun-phrase is itself fixed, not by the antecedent clause, but by the speaker's referential intentions. The new meaning clause shows us how to distinguish between the descriptive content (*śakyatāvacchedaka*) of a pronoun, on any occasion of its use, and the invariant element (*anugama*) in pronoun's meaning, the two notions which were conflated in the semantics of generic nominals.

Gadādhara is careful to formulate his view with extreme precision, for he notes that there is a startling pitfall which must be avoided. Nyāya has been arguing all along for the following criterion of synonymy: two expressions are synonymous iff they have the same meaning invariant (*anugama*). If, however, we allow such features as "the mode in the utterer's referential intention" to be meaning invariants, then this criterion appears to collapse (1927: 98). Take an ordinary ambiguous noun like "*saindhava*", which sometimes means salt and sometimes a horse, and which is judged by the usual criterion to be ambiguous because it has two distinct meaning invariants, salthood and horsehood. Now even such disparate properties as salthood and horsehood can be collected under the general rubric "the guise in the speaker's referential intention", for whenever the speaker uses the expression "*saindhava*", she presumably intends it to mean one or the other of its two meanings. So it seems that if "the mode in the utterer's referential intention", functioning as an indicator property, is allowed to be the

[11]*vaktṛ-buddhi-viṣayatāvacchedakatvopalakṣita-dharmavāṃs tatpadaśakyaḥ*. (*Ādarśa*, 1892: 86).

'consecutive character' or meaning invariant of an expression at the second level, then even paradigmatically ambiguous expressions like "*saindhava*" cease to be analysable as ambiguous expressions.

Gadādhara's reply to this is as follows. Very roughly, his point is that, although it is true that each of the features salthood and horsehood fall under the general rubric "the mode in the utterer's referential intention", this is not a normative truth, i.e. it is not true in virtue of the linguistic rules which govern the use or interpretation of the word "*saindhava*". On the other hand, the linguistic rules governing the pronoun explicitly introduce this rubric as the 'consecutive character' of the pronoun's token-reflexive descriptive content. Gadādhara states that the rule for the interpretation of an anaphoric pronoun should be given as follows:

> Let (an utterance of) the word "it", designate an object under such a mode as is the mode in the utterer's referential intention[12].

Here, because the token-reflexive modes pothood, clothhood etc., are picked out under the invariant description "the mode in the utterer's referential intention", the rule governs a non-homonymous word. The rule for the pronoun is in this respect just the same as that for a noun like "pot", whose token-reflexive referents are picked out under the invariant description "the pot". However, in the rule or rules for the ambiguous word "*saindhava*" no such invariant feature is mentioned. The meaning of "*saindhava*" would be specified *via* the pair of clauses, <"*saindhava*$_1$" means salt> and <"*saindhava*$_2$" means a horse>, where subscripts are used to disambiguate the different meanings. So the use of the rubric "the mode in the utterer's referential intention" in the meaning-clause for the pronoun need not undermine the explanation of ambiguity.

Gadādhara is in effect emphasising that there are two quite distinct ways in which consideration of speakers' intentions can enter a theory of meaning. They can enter either as criteria for disambiguation, that is, for deciding which of a plurality of meanings is the one intended. Alternatively, they can enter as criteria for reference-

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[12]*buddhi-viṣayatāvacchedaka-dharmāvacchinnas tat-padād boddhavya,* (1927: 101).

fixing, if there are expressions whose semantic reference is a function of the speaker's intended reference. The pitfall considered above depends on confusing these two quite separate roles.

3.3 Pronouns, Anaphora, and Speakers' Referential Intention

In the previous sections, I presented Gadādhara's theory of pronominal reference within its own parameters and those set by the discussion of the preceding chapters. I would now like to reappraise his theory from a wider perspective, drawing in particular on the discussions of anaphora and pronominal semantics to be found in the recent literature. The sentence to which Gadādhara's theory is specifically directed is "*ghaṭa ihāsti tam ānaya*" (**G**). As it stands, **G** seems to be ambiguous between **G**(a): "There is a pot here - please bring it!", in which the antecedent clause contains a quantifier expression, and **G**(b): "[The/that] pot is here - please bring it!", in which it does not. Now, sentences in which an anaphoric pronoun is preceded by an antecedent quantifier have attracted considerable interest, because they do not fit easily into any of three recognised categories of pronominal use. These three categories are as follows.

(1) The first category comprises those sentences in which the pronoun has a deictic or demonstrative force. This use is exemplified by the sentence "Here it is", said pointing to some perceptually present object. It may also include sentences like Lasnik's "Well, he's left", said of someone who has just walked out of the room, and is thus no longer perceptually present (Lasnik, 1989: 90-1. C.f. Gadādhara's '*parokṣa*'). In each case, a certain object is somehow made salient in the extra-linguistic context of utterance. At first sight, the anaphoric pronoun in either reading of **G** cannot be of this type, because its reference appears to be indicated, not by extra-linguistic factors, but by semantic material internal to the uttered sentence.

(2) A second well-attested use of the pronoun is as co-referring with an antecedent noun-phrase or other referential expression, either in the same sentence or in some other fragment of the preceding discourse. Consider a sentence like "Devadatta

claims that he makes the best pots". The truth-conditional content of this sentence does not seem to depend on the context of utterance, since the reference of the pronoun is determined by an anaphoric link with the name "Devadatta". Strictly speaking, the sentence is ambiguous, since the pronoun "he" might be construed as making a deictic or quasi-deictic reference to some third party. The first reading, however, is mandatory when the pronoun is reflexive: thus, "Devadatta likes himself" or perhaps even "Devadatta claims that he *himself* makes the best pots". Once again, however, there is a doubt as to whether the sentence considered by Gadādhara can be subsumed into this category, this time because of the apparent quantifier expression in the antecedent. If, as many writers believe, descriptive noun phrases, whether definite or indefinite, are not referential expressions, then it seems that there is nothing in the antecedent with which the pronoun can corefer. Even if we take the antecedent noun phrase to be a singular term, as the Nyāya would tend to do, there is still the first reading **G**(a), in which a quantifier expression explicitly features.

(3) This leads on to the third recognised category of pronominal use, in which the pronoun is bound by an antecedent quantifier expression. The pronoun in "Every potter loves his pots" seems to be used in this way, and when so used, it is not to be thought of as a referring expression at all, but as strictly analogous to a logical bound variable. It might seem that the Gadādhara sentence is of this type, and that, for this reason, Gadādhara's own analysis is fundamentally mistaken. But we should note that there are arguments in the literature which purport to show that antecedent quantifiers do not always bind subsequent pronouns, and if these arguments are sound, the status of the sentence in question becomes again problematic (c.f. Evans, 1985: 104-147).

Let me now review some recent proposals about the semantics of the sentence **G** and its like. Having clarified to some extent the space of logical possibilities, we might hope to get a clearer picture of the distinctive features of Gadādhara's account. Since Gadādhara emphasises the criterial significance of the speaker's referential intentions, I

will pay particular attention to discussions of the role of speakers' intentions in some of these proposals.

Chastain (1975) has argued that there is nothing at all problematic about seeing **G**-type sentences as involving a rule-governed coreference, or, as he puts it, an "anaphoric chain". Since the chain has to be 'anchored', its first member must be a referring expression, and Chastain explicitly commits himself to the doctrine that both definite and indefinite descriptions can refer. The difference between indefinite and definite descriptions "is...not that indefinite descriptions cannot refer at all...[but] that the former can only be used to initiate anaphoric chains and the latter only to continue them". So on Chastain's view, the sentence **G** belongs to the second category distinguished above.

A standard objection to views such as this, at least when applied to sentences with indefinite descriptions in the antecedent clause, is that they oblige us to engage in unwarranted 'psychologizing'. For the sake of clarity, let us modify our example from the imperative **G** to the declarative **G***: "There is a pot here - it is blue". Suppose now that there are two pots here, one blue and one red. According to Geach, it seems on proposals like that of Chastain that "we might find ourselves trying to determine the truth value of [**G***] by asking wh[ich pot] a man would have in mind when he uttered or wrote down th[is] sentence" (1972: 11). Geach adds that "such psychologizing is really not necessary", since the truth conditions for **G*** are independent of what its utterer had in mind. Geach concludes that the sentence must belong to the third category, in which the pronoun is a variable bound by an antecedent quantifier.

Lasnik (1989) too notes that there are cases where appeal to the speaker's intentions would be quite unwarranted. He considers the theory that one might extend the rule-governed account of co-reference to cover even cases like "Well, he's left", said of someone who has just walked out of the room. Such a proposal might be motivated by the desire to restrict the deictic use of pronouns to someone or something physically present in the shared perceptual environment. But of this proposal Lasnik remarks that

"it would drag the theory into a sort of mysticism in which the content of an idea or belief or memory or supposition, etc., can provide a noun phrase for the operation of a formal grammatical process" (1989: 91). Lasnik is not of course denying that psychological factors are involved in fixing the referent of the pronoun "he", but only that such factors must be in his phrase "independent of the grammar".

There is, however, a perfectly respectable way in which the speaker's intentions become salient, and that is in the disambiguation of ambiguous utterances. One who hears the strictly ambiguous sentence "Give me *saindhava*", for example, will appeal to a host of loosely pragmatic considerations, but especially the intentions of the utterer, to decide which is the correct reading on the occasion of any particular utterance. The Indian semanticists call this phenomenon of disambiguation through consideration of speaker's intention '*tātparya*'. Lasnik indeed extends this idea even to **G**-type sentences. For him, the reference of the pronoun "it" in "A/the pot is here - please bring it!" is determined by "considerations relating to situation, communicative intention and the like". There are no grammatical rules of coreference, of the sort appealed to by Chastain; instead, the co-reference of "the pot" and "it" is to be explained at the pragmatic level. Gadādhara's position is that the speaker's referential intention (*vyaktṛ-buddhi*) is an 'indicator' of the pronoun's descriptive content. It is the constant element in the meaning of the pronoun (*anugama*) which resolves the non-homonymy problem. More importantly, it is mentioned in the meaning clause as that which fixes the reference of the pronoun. A problem with Lasnik's account is that since this element becomes purely pragmatic, he effectively treats the pronoun as if it were a radically homonymous expression. He offers no account of what different tokens of the same pronoun have in common, and hence how it is that someone who knows the meaning of the pronoun can understand any token utterance of it.

As against the grammatical coreference, the bound-variable, and the pragmatic explanation of **G**, Evans argues that the use of the pronoun in such sentences constitutes a *sui generis* category of pronominal usage, not reducible to any of the usual kinds. He

claims that the pronoun "it" in **G** is what he calls an "E-type" pronoun, and says of such pronouns that "they are not genuine singular terms in the sense in which ordinary proper names and demonstrative expressions are; rather they are singular terms whose reference is fixed by description" (1985: 104). The description in question is that which is embedded in the antecedent clause, and this leads Evans to reformulate his view as that E-type pronouns "refer to the object or objects which verify the antecedent clause" (ibid.: 222). To illustrate his point, he says that in the sentence

> Just one man broke the bank at Monte Carlo, and he has recently died a pauper,

the specification of the reference of the pronoun "he" takes the form

> For any x, the denotation of 'he' in the second clause of (the above sentence) is x iff x is the only man who broke the bank at Monte Carlo (ibid.: 124-5).

The corresponding clause in the case of the Gadādhara sentence would be: <For any x, the denotation of "it" in **G** is x iff x is [the unique] pot>. We could paraphrase Evans' theory in the Nyāya terminology by saying that the property expressed by the antecedent clause, the property being-the-only-man-who-broke-the-bank-at-Monte-Carlo for example, is an *indicator* of the pronoun's reference. Generalising this, the meaning clause for the E-type pronoun would be given as

> $\mathbf{PRON}_{\mathbf{Evans}}$ $(\forall c)(\forall x)$(Means(c, "it", x) iff x verifies the antecedent clause of c).

Let me contrast this with a 'pronoun of laziness' approach and the proposal of Gadādhara. According to the 'pronoun of laziness' theory, the antecedent description does not merely fix the reference of the pronoun, but gives its meaning. We could use Gadādhara's two-component meaning relation to express this. Thus,

> $\mathbf{PRON}_{\mathbf{laziness}}$ $(\forall c)(\forall x)(\forall \pi)$(Means (c, "it", $\langle x, \pi\rangle$) iff $\langle x, \pi\rangle$ is the meaning of the antecedent nominal in c.

An immediate difficulty with both these proposals is that they assume that the antecedent description is uniquely satisfied. They need to make this assumption in order to be able to claim that the reference of the pronoun is fixed entirely by semantic material internal to the sentence. The "pronoun of laziness" theory, however, agrees with

Gadādhara's theory to the extent that it assigns to the pronoun a descriptive content. But the similarity stops there, because, for Gadādhara, the descriptive content is fixed by the speaker's referential intention, and not, in the first instance, by the description which occurs in the antecedent clause.

If we are to distinguish the proposals, we must enquire as to what happens when the normal course of events goes wrong, that is to say, when the uttered antecedent description is not uniquely satisfied, or does not coincide with the speaker's referential intention. Can we make any sense of the conjecture that sentence-external factors sometimes fix the reference of the name of the noun phrase with which the pronoun in **G** is substitutable? In Evans' account it seems at first sight that the speaker's referential intentions play no part, that for Evans, the specification of the reference of the pronoun is sentence-internal, since "their immediate sentential contexts can be evaluated independently for truth and falsehood" (ibid.: 104). But suppose as before that there are two pots in the room, one red and one blue, and that the speaker intends to refer to the blue pot, but that she simply utters **G**, "There is a pot here - bring it". As it stands, on Evans' account, the pronoun here fails to refer, since the reference-fixing antecedent description is incomplete. In order to avoid this consequence, Evans says that "we should allow the reference of the E-type pronoun to be fixed not only by predicative material explicitly in the antecedent clause, but also by material which the speaker supplies upon demand" (ibid,: 130), for example, the material "the blue one" in response to the question "Which pot?". Now since the only material which the speaker will "supply on demand" is material which more fully manifests her referential intention, it seems that it is the referential intention, not the antecedent clause, which fixes the reference of the pronoun.

Exactly the reasons which lead Evans to introduce an element of 'psychologising' into his own account, namely that the antecedent description actually uttered does not always uniquely determine the referent could also motivate Gadādhara's use of referential intentions in fixing the descriptive clause with which the pronoun is

substitutable. But if in such cases, it is the speaker's referential intention which fixes the description, then the same should be true in all cases.

To sum up, Gadādhara's theory shares features with both Evans' account and the "laziness" theory, but, for at least one category of pronominal usage, offers a theoretically more coherent approach. The main conclusion I wish to draw from this chapter is this. Anyone who recognises that there are expressions whose descriptive content is variable, whether or not they agree that the pronouns are such, must, if they wish to regard these expressions as non-homonymous, introduce meaning-clauses which quantify over descriptive content. This is possible only if descriptive content is an explicit relatum of the meaning relation. As an excercise in semantic theory, Gadādhara's study of the anaphoric pronouns highlights the significance of Vardhamāna's principle and the two-component theory of meaning to which it leads.

4

Meaning, Interpretation and Epistemology

At beginning of the *Śaktivāda*, Gadādhara gives a short but highly informative summary of certain well-attested Nyāya doctrines about language, and especially about the notion of meaning (*śakti*). My aim in this chapter is to elaborate the conception of language to which these doctrines lead. The Nyāya conceive of language as a *pramāṇa*, that is, as a cognitive process leading to the acquisition of beliefs. They take as central the notion of a 'proper' interpretation (*śābdabodha*) of an utterance, which is such that an interpretation is proper only if it is true, and they claim that when an utterance is so interpreted, the interpreter is correctly described as *knowing* that which the utterance expresses. I argue, however, that the epistemological dimension to this conception of language does no work in the Nyāya theory of meaning. The Nyāya account of language is in fact a general theory of language-processing, that is, of the mechanisms by which a competent language user moves from an auditory perception of an utterance to a belief that a speech-act of a certain kind with a specified content has been performed. We must therefore distinguish between the component in the theory which specifies the content of the utterance and the component which specifies the kind of speech-act performed in uttering it. The first of these two components is the theory of meaning, a theory which shows how to derive, for every sentence σ in the language, a clause of the form "σ means that p". It is to the second component, what is usually called the theory of force, that the epistemological dimension of the Nyāya theory belongs. Having discussed the epistemology of interpretation, I examine the Nyāya doctrine that linguistic competence consists in the knowledge of a compositional meaning theory. In the final section, I look at the role of convention in the Nyāya theory, and their thesis that semantic relations are fixed by an authoritative decree, sometimes human and sometimes divine.

4.1 *Pramāṇas*: The 'Causal Power' Conception

Classical Indian philosophy thematized the study of the *pramāṇas* or "accredited means leading to a thought- or knowledge-episode", and the *prameyas* "objects knowable by means of a *pramāṇa*" (c.f Matilal, 1986; Mohanty, 1992). Study of the sources of knowledge, as part of the Indian philosopher's general enterprise, seems indeed to stretch back even to the time of the later Upaniṣads and Buddhist Nikāyas. Jayatilleke has documented some of the evidence for this:

> [W]e find in the Maitri Upaniṣad the use of the word *pramāṇa* (a valid means of knowledge) in a technical sense and a growing realisation that our claims to knowledge must be backed up by their being made on valid grounds. We talk about time but how do we know that such a thing called time exists. This Upaniṣad suggests that we measure or know time from observing the movements of the sun across the constellations. It is said: 'Because of its subtlety this (course of the sun) is the proof for only in this way is time proved (to exist)' (*saukṣmyatvād etat pramāṇam anenaiva pramīyate hi kālaḥ*, 6.14). This is followed by the significant statement that 'without a valid means of knowledge there is no apprehension of objects (lit. what is to be proved)' (*na vinā pramāṇena prameyasyopalabdhiḥ*, loc. cit.). .... There is also a reference to *pramāṇikāḥ* in the Aṅguttara Nikāya...: 'In this matter the epistemologists [*pramāṇikāḥ*] argue thus; this person and the other have identically the same traits, why then is one of them (considered) inferior and the other superior' (A.V. 140) (1963: 64-65).

Jayatilleke notes that at roughly the same time, the Greek Strabo referred to Indian philosophers as "a class of brahmins contentious and fond of argument called the Pramnai".

Yet it is to the early Nyāya that one must turn for a systematic development of the *pramāṇa* methodology. We find here the thesis that a *pramāṇa* is that through which things are 'established'[1]. The meaning of the word "thing" (*artha*) is wide enough to include both objects and propositions, but what is it to 'establish' something? The guiding analogy in the early Nyāya was between a *pramāṇa* as a means of establishing objects and a measuring instrument such as a pair of scales (*tūla*, *Nyāyasūtra* 2.1.16)

[1] c.f. Vātsāyayana: *pramāṇato 'rtha-pratipattau....* (Gautama, 1936: 1); Uddyotakara: *upalabdhi-hetuḥ pramāṇam*, (ibid.: 15).

as a means of establishing weight. The persuasiveness of this analogy is considerably strengthened in Sanskrit, almost to the point of becoming a truism, by the fact that the verbal root √*mā*-, from which the term *pramāṇa* is derived, means "to measure" as well as "to know" (c.f Matilal, 1986: 36). To establish an object, then, is akin to 'getting the measure' of it, in the sense of knowing it for what it is, knowing its nature. The early Nyāya emphasise that we use a *pramāṇa* when we wish to resolve a doubt, which will usually have the form "What is this object ? Is it X or is it Y?". The decision (*niścaya*) we make, i.e. the doubt-free state at which we finally arrive, must be the result of our 'measurement' of the disputed object by means of some *pramāṇa*.

It is usual to distinguish between a number of different uses of the verb "to know". Among others, there is "knowing that" or propositional knowledge, which Russell called knowledge by description. There is also "knowledge-of" or knowledge by acquaintance, and "knowing how", practical knowledge. Finally, there is "knowing what", which includes "knowing who" as well as "knowing which". It would seem that the *pramāṇa* epistemology is best understood as an elaboration of some form of knowledge-what. We use a ruler to measure the length of a line, and hence come to know the length, that is to say, to know what the length of the line is. Analogously, when we use a *pramāṇa* to 'measure' or 'establish' an object, we come to know the object, in the sense of knowing what the object is. Such knowledge seems to presuppose that the object exists, as the locus of the doubt, and so, to adopt a convenient idiom, we may say that it is knowing *x to be f.* It is not of immediate concern to us here whether such modes of knowledge ascription are reducible to one of the other kinds, although it is seems plausible that knowing what something is is analysable as knowing, of something, that it possesses some specifiable feature[2].

The early Naiyāyikas developed their account of the *pramāṇa* methodology partly as a response to the sceptical challenge posed by the Mādhyamika Nāgārjuna. Nāgārjuna asks the following question:

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[2]c.f. the extended analysis of "knowing who" locutions in Boer and Lycan (1986).

> If such and such objects are established for you through the *pramāṇas*, tell me how those *pramāṇas* are established for you? If you think that such and such 'objects of true cognition' (*arthānāṃ prameyāṇām*) are established through the 'instruments of true cognition' (*pramāṇa*), just as the things to be measured (*meya*) are established through the measuring instruments (*māṇa*), [we ask:] how are those 'instruments of true cognition', viz., perception, inference, comparison and verbal testimony, established? If [you say that] the *pramāṇas* are established without the help of *pramāṇas*, then [your] proposition that [all] objects are established through *pramāṇas* is abandoned. [But] if the *pramāṇas* are established through other *pramāṇas*, then there is an infinite series (*anavasthā*) (1986: 115, trans. Bhattacharya, Johnston and Kunst).

We cannot use something as an instrument for knowing about an object unless we are sure that it is an 'accredited means of knowing', any more than we can use a ruler to measure lengths unless we are sure that it has been calibrated correctly. But in order to establish that the instrument is an accredited means, we must use still another means. How, rhetorically asks Nāgārjuna, are we to avoid the regress that apparently ensues. The illuminating answer given by Vātsyāyana and Uddyotakara borrows an insight from Pāṇinian grammatical theory, as we shall now see.

The historical development of the theory of *pramāṇas* seems to have been linked with the study of grammar in the Sanskrit tradition. Etymologically, a *pramāṇa* is a *pramā-karaṇa* 'that which is instrumental in connection with a certain effect, viz. a knowledge-episode'. An analogy is drawn between action sentences like "I write with my pen" and knowledge ascriptions like "I see with my eyes": the pen and the eyes are both said to be the instrument (*karaṇa*) for the production of the effect. Here, an 'instrument' is one of the six "*kārakas*" described in Pāṇinian grammatical theory. A *kāraka*, roughly speaking, is any factor, as denoted by a noun, which contributes to the action which is denoted by the verbal root. Pāṇini isolated six *kārakas*, namely *kartṛ* (agent), *karman* (object), *karaṇa* (instrument), *sampradāna* (beneficiary), *apādāna* (fixed point of departure) and *adhikaraṇa* (locus). Take, for example, the sentence

In the kitchen Rama cooks rice with firewood for Sita.

If the verb in such a sentence is assumed to signify a particular activity or event, *viz.* a cooking event, then we might regard each of the nouns as designating a salient factor in the causal production of that activity. Thus, the action has an agent, Rama, an object, rice, an instrument, firewood, a 'recipient', Sita, and a location, the kitchen.

Many authors have pointed out that it is a mistake to identify the *kāraka* categories with the grammatical cases; because, for example, the agent is in the first ("nominative") case in active constructions but in the third ("instrumental") case in passive constructions. Similarly, the third *kāraka*, the instrument, is indicated by both the third and fifth case-triplets. It seems that the *kāraka* level mediates between the levels of surface syntactic structure and semantic or causal relations. Thus Staal and Kiparsky (1969) argue that the *kārakas* are a level of deep or underlying syntactic structure, and Matilal claims that they "mediate between the introduction of affixes in words and the representation of certain semantic relations" (1990: 41). Matilal notes that Pāṇini's rules governing the *kārakas* in fact fall into two general categories. There are six major rules that "define the six *kārakas* in their *initial* or *primary* meanings". For example, Pāṇini-sūtra 1.4.54 states that the agent is marked by 'independence' ("*svatantraḥ kartā*"); another rule states that the instrument is the 'most effective' (*sādhakatama*) causal factor. Similarly, rule 1.4.45 says that the substratum relative to the action is the *adhikaraṇa* or locus. But Pāṇini also formulated "a number of additional rules which widened the scope of each category ...in terms of syntactic and other considerations" (ibid.). For example, rule 1.4.46 states that substratum of an action denoted by a certain set of verbs prefixed with certain pre-verbs, e.g. *adhi-√sthā* (to stay), is the *karman* "object', not the *adhikaraṇa* 'locus' of the action. These extended or secondary senses facilitated the formulation of "bridge rules" indicating the conditions under which the post-nominal affixes (i.e. the case inflections) should be introduced. The practice of the early Naiyāyikas is to ignore the extended senses of the *kāraka* terms in the present context, and we may safely follow them in this.

The above theory of the *kārakas* is clearly tied up with a certain picture of causation. We are to think of any action or event as arising from a causal complex in which there are a small number of isolable elements: the agent of the event (animate or inanimate), the location of the event (usually identical with the location of the agent), the 'most efficacious' causal factor or instrumental cause of the event, and so on. As part of their anti-sceptical argument, the early Naiyāyikas were at pains to stress that the labels 'agent', 'object', 'instrument' etc. do not refer to objects as such, but only *qua* their playing a certain causal role with respect to the event in question. The very same object can be the agent for one event, and the object, or any other element, for another. So Vātsyāyana says that

> [All] *kāraka* words apply through the incidence of some ground or other. In "The tree stands [there]", the tree is the agent because it has 'independence' with regard to the matter of standing. In "[He] sees the tree", the tree is 'ardently desired' through the action of seeing [by the agent] and hence it is the object. ..... In "[He] sprinkles water for the tree", the tree is intended to be the 'beneficiary' of the action of sprinkling, and hence is the *sampradāna* 'beneficiary' or 'recipient' (*Bhāṣya* under *Nyāyasūtra* 2.1.16, trans. Matilal, 1990: 43).

He goes on to emphasise that the *kārakas* signify causal or functional roles:

> In this way it is neither the thing itself nor the action itself that is a *kāraka*. What then? *When a thing is a participant in an action or when it is endowed with a special functional activity, it becomes a kāraka*. That which is independent in performing an action is the agent, it is neither the bare thing nor the bare action. That which is most desired to be obtained [by the agent] is the object, it is neither the bare thing nor bare action. In this way one can explain the notion of the most efficacious in defining the instrument and so on. The assigning of *kāraka* categories follows this rule. A *kāraka* category applies neither to the bare thing nor to the [mere] action. What then? It applies to the thing that participates in action and to what is endowed with some special functional activity[3].

Now the relevance of all this to our present discussion is, as Vātsyāyana soon remarks, that the term '*pramāṇa*' is itself a *kāraka*-word. Knowing or 'establishing' is

[3] Op. cit., my italics. This interpretation of the *kārakas* is also discussed in Cardonna,1974.

seen as itself a form of activity, for the Indian epistemologists upheld an episodic, as opposed to a dispositional, account of knowledge, in which to know is to token a particular knowledge-event (c.f Matilal, 1986: 97-141). It is now possible to isolate the functional roles, and the objects which are endowed with them in any specific instance of knowing. There will be an agent, the knower (*pramātṛ*), and an object of knowledge, the *prameya*. There will also be an instrument of knowing, the *pramāṇa*. The point of the preceding discussion is just that the distinction between the objects of knowledge and the means or instruments of knowing is not a distinction based on the existence of two kinds of entity, but one between two kinds of causal role, two roles which the very same entity might be capable of performing in different situations. Perhaps, to continue the analogy, the pair of scales is an instrument for weighing a certain piece of gold; but it becomes itself the thing measured when being tested or calibrated against a known weight. And although, when I see an object, my perceptual faculty is the instrument (*pramāṇa*), the same perceptual faculty becomes the *object* of measurement when I am asked to read the optician's chart.

The early Naiyāyikas believed that they could now answer Nāgārjuna's sceptical challenge. For the task of coming to know about objects by employing our means of knowing and the task of verifying the means of knowing themselves are two quite distinct epistemological projects. It would be a category mistake (or at least a "*kāraka* mistake") to suppose that when trying to gain knowledge about something the *pramāṇa* or instrument of knowing must itself be a second 'object' of enquiry. Moreover, there is no reason, says Uddyotakara, to suppose that the second task is even always necessary: it is often enough if we do not have any doubts or reservations about the accuracy of our *pramāṇas*. So if there is a regress, it is contingent and not viciously infinite.

A radical sceptic may well be dissatisfied with this response, but it is not our purpose to go any further into the Mādhyamika-Naiyāyika controversy. What we have seen is that in early Nyāya an entity is regarded as a *pramāṇa* not because it belongs to a certain ontological type, but because it plays a specific causal role (*kriyāviśeṣayukta* -

Vātsyāyana), or has a particular causal power (*śaktikriyāsaṃbandha* - Uddyotakara) in the epistemic situation. It is the 'most efficient' causal factor leading to the knowledge-episode. The next step is to see how the notions of *kāraka* and *pramāṇa* are transformed in Navya-Nyāya.

4.2 *Pramāṇas*: The 'Logical Role' Conception

If the early Nyāya choose to emphasise the causal model which underlies the *kāraka* system, Navya-Nyāya return to its significance in the analysis of sentences. I believe we may usefully consider the Navya-Nyāya theory as a study of the logical form of action-, or more generally event-, sentences. Take as an example the sentence

(1) Rama cooks rice.

This sentence is analysed as follows. The verbal root (√*pac*-) is taken to be an expression which refers to an event, here the particular cooking-event described by the sentence. The nouns "Rama" and "rice" refer to two objects, Rama and rice, and their post-nominal inflections indicate that these two objects stand respectively in the agency (*kartṛtva*) and objecthood (*karmatva*) relations to the event. So if we let "x" stand for the cooking-event referred to by the verbal root, the logical form of the sentence is given as

(2) Agent (x, Rama) & Object(x, rice).

To give a full analysis of a notion expressed by an action verb, such as the notion of cooking, we must combine the general account of the logical form of action sentences with a specification of the conditions under which an event is correctly described as a cooking-event. So the final analysis would run like this:

> A cooks B iff (i) for the event x, x meets condition k (the condition for something to be a cooking-event), (ii) the agent of x is A, (iii) the object of x is B.

If further *kāraka* terms are mentioned in the sentence, new clauses can be introduced conjunctively:

> A cooks B with C iff (i) for the event x, x meets condition k (the condition for something to be a cooking-event), (ii) the agent of x is A, (iii) the object of x is B, and (iv) x is produced by means of C.

Let us compare the *kāraka* analysis of action sentences with the intuitive analysis of (1) as a binary predication "Cooks(Rama, rice)". The binary predication analysis faces a well-known objection. If we analyse (1) as a two-place predication, the sentence "Rama cooks rice for Sita" becomes a three-place predication, "Rama cooks rice for Sita in the kitchen" a four-place predication, and so on. The problem which now arises is that this leaves entirely obscure how it is that for example "Rama cooks rice for Sita" entails "Rama cooks rice". This is just the sort of entailment a proposal about logical form should account for. One suggestion is that we account for this entailment by reading (1) as involving an ellipsis, i.e. as "For some x, Rama cooks rice for x". The entailment would then be a case of existential introduction. However, as Kenny has pointed out, the latter analysis runs into the problem of what he calls the "variable polyadicity" of action verbs: there is no way of determining how many standby positions we shall need to introduce[4]. The paraphrase (2) avoids these problems by taking the sentence to contain a reference to an event, which may then be further described at will by conjoining additional predications. Thus the logical form of "Rama cooks rice in the kitchen" will be

(3) Cooking-event(x) & Agent (x, Rama) & Object(x, rice) & Location(x, kitchen),

which obviously entails (2).

The Nyāya analysis invites comparison with Davidson's study of action sentences. The Davidsonian analysis of (1) is:

(4) $(\exists x)(\text{Cooks}(\text{Rama}, \text{rice}, x))$.

"Rama cooks rice in the kitchen" is analysed as

(5) $(\exists x)(\text{Cooks}(\text{Rama}, \text{rice}, x) \,\&\, \text{In}(x, \text{kitchen}))$,

where "In" is a prepositional relation representing location. There are three salient differences between the two analyses. First, although both solve the "variable polyadicity" problem by taking the sentence (1) as introducing an event, Davidson says that the events are introduced as "entities about which an indefinite number of things can

[4]Kenny's argument is discussed in Davidson (1980: 107-8).

be said" (1980: 117), whereas the *kāraka* theory prescribes six logically privileged descriptions. This would seem to be a reflex of the causal model implicit in the *kāraka* theory, no doubt influenced also by the syntax of the Sanskrit language. A description which does not fit into one of the six *kārakas* is called a "remainder" (*śeṣa*) in the Pāṇini system. A more significant difference emerges when we consider the logical relation between transitive and derived intransitive verbs, for example "Rama cooks rice" and "Rama cooks". This is but a special case of "variable polyadicity", and we should therefore be able to discern the relevant structure in the sentence (1). The *kāraka* analysis (2) is here preferable to Davidson's use of a three-place predicate in (4), since it can account for the entailment. Sometimes, indeed, a sentence does not even mention the agent, e.g. "The rice was cooked with the fire". Again, (2) but not (4) can account for the logical form without invoking ellipsis. A third respect in which Davidson's theory differs from the *kāraka* analysis is his suggestion that there is an "unrecognised element of generality in action sentences", and his proposal that the analysis should quantify over an action-variable. The reason for this proposal is illustrated by the difference between "Brutus killed Caesar", which describes a single act, and "Brutus kissed Caesar", which does not (there may have been several such kissings). "When we were tempted into thinking", says Davidson, "[that an action] sentence describes a single event we were misled: it does not describe any event at all. But if [it] is true, then there is an event that makes it true". We might easily accommodate this observation in the *kāraka* analysis by revising (2) to read

> (2′) (∃ x)(Cooking-event(x) & Agent (x, Rama) & Object(x, rice)).

The Nyāya regard the verbal root as a referring expression, not a predicate, and so for them the need to quantify over an event-variable does not arise.

Navya-Nyāya uses its qualificand-qualifier language to reparse sentences like (2) and (3). The agent (*kartṛ*) is the qualificand (*viśeṣya*) in the structural description of the sentence. All the other *kārakas* are qualifiers of the action-event, distinguished from one another only by the connecting relations linking them to this event. Thus the location

adhikaraṇa is defined as a qualifier of the action by the location-located relation, and so on. So the *kārakas*, as elements in the logical structure of the sentence, are defined by their specific logical role.

Let me elaborate this a little. The Nyāya spell out the notion of agency as follows. The post-verb (*ākhyāta*) signifies such an 'effort' or 'operation' of the agent as is favourable to the arising of the cooking event. This effort is a quality located in the agent. So an agent is the substratum of an effort favourable to the origination of the event. This makes more precise Pāṇini's definition of the agent as that which is "independent": it is the independence of a substance over its qualities. Applying this analysis, we arrive at the Navya-Nyāya paraphrase:

> Rama is qualified by such an effort as is conducive to cooking, which cooking has rice as its object-goal.

Or, using the standard notation "Q(x,y)" for "x is qualified by y",

> Q(Rama, Q(effort, Q(cooking-event, rice))).

Each occurrence of the blanket connector Q can be further specified by stating the particular relation for which it stands. Thus the connector between cooking and rice is the objecthood that is resident in rice and conditioned by cooking, and the connector between Rama and the effort is the inherenthood resident in Rama and conditioned by the effort. The ensuing general description of the structure of the sentence is called its "structural form" or *viṣayatā*. This notion of structural form is, I believe, not very different from the usual notion of the logical form of a sentence, with the proviso that the non-logical argument places are filled by specified constants. It is a 'paraphrase' of the sentence into the technical language of Navya-Nyāya[5].

What is the 'instrumentality' (*karaṇatā*) relation? Take the sentence "Rama cooks rice by means of the fire". The fire is here the 'instrument' for the end-product, cooking of the rice. To produce this effect, the fire also needs to be physically connected with the rice. This fire-rice contact is called the 'operating condition' (*vyāpāra*) of the instrument, and would be signified by the post-verb or *ākhyāta* (Gaṅgeśa, 1901: 831).

[5] I describe this technical language more fully in the Appendix.

Thus the model of instrumentality is 'I+V → R', where 'I' stands for the instrument, 'V' for the operating condition, and 'R' for the end-product[6]. The operating condition, roughly speaking, is that in virtue of which the agent causes the instrument to function. Following this model, Gadādhara in his *Vyutpattivāda* defines an instrument (*karaṇa*) as that whose operation leads to the action/event, which operation also depends on the agent[7]. When the verb is not one which can take a logical instrument, e.g. "Devadatta sleeps", there is no sense in which the agent is 'operative', and the post-verb indicates simply the substratumhood relation (*āśrayatā*) between the agent Devadatta and the sleeping event[8]. I shall now apply the Navya-Nyāya analysis to the study of knowledge sentences.

The *pramāṇa* methodology of Navya-Nyāya differs from that of the early Nyāya in that it is an analysis of the logical form of knowledge attributions, and not primarily an analysis of the causal complex leading to knowledge-events. It agrees with the earlier analysis, however, that we must look to the (description of the) particular epistemic event to determine what is the *pramāṇa*, what is the *prameya*, etc. in the particular case. There is no hard-and-fast ontological rule.

Now, as noted above, the *pramāṇa* doctrine is a theory of "knowing what", where knowing what an entity is will typically involve knowing it to be the possessor of some feature or another. If one sees a shining object on the floor, knowing what the object is might involve knowing it to be a piece of silver or knowing it to be a piece of shell, etc. So to a first approximation, let me say that a knowledge attribution has the form

(6) S knows a to be f.

In keeping with the *pramāṇa* theory's 'episodic' account of knowledge, the verb "to know" is treated as an event-verb, each utterance of which refers to a particular knowledge-event, and knowledge attributions can be analysed as event sentences

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[6] I follow Matilal (1990: 51) and (1985: chap. 5.1).
[7] *kartṛ-vyāpārādhinatve'pi vyāpāravat kāraṇaṃ karaṇam.* Cited in P.C. Chakravarti, (1930: 250).
[8] c.f. P.K. Sen's introduction to Raghunātha (1979: xiv).

following the pattern of the previous section. Here, however, Nyāya says that the logical object (*karman*) of a verb of intention like "knows" is the content (*viṣayatā*) of the knowledge-event, just as the logical object in the sentence "She sees the cat" is the thing seen. So, if "x" stands for the particular knowledge-event, (6) is analysed as

(7) Agent(x, S) & Content(x, a-as-f).

Here, saying that the content of the knowledge-event is a-as-f is just shorthand for the full description of it as a cognition event whose qualificand is a and whose qualifier is f. Navya-Nyāya would analyse "S knows a to be f by means of π" as

(8) Agent(x, S) & Content(x, a-as-f) & Instrument(e, π).

So the final Navya-Nyāya analysis of knowledge is as follows:

S knows a to be f via π iff given event x,
(i) x meets condition K (the condition for something to be a knowledge-episode),
(ii) S is the substratum of x,
(iii) 'a-as-f' is the content of x, and
(iv) x is generated through the operation of π.[9]

Given a specification of the condition K, we can use this as a definition of a *pramāṇa*. A *pramāṇa* is a substituent for 'π', anything which is the instrument in the production of an event which meets condition K.

Gaṅgeśa has already told us what the condition K should be. According to his theory, a cognition-episode whose qualificand is a and whose qualifier is f is a knowing event (*pramā*) just in case a is in fact f[10]. In other words, the condition K is simply the truth of the cognition. The model of knowledge which this results in has been elaborately defended by Matilal against certain objections and Gettier-like counter-examples (1986, esp. 137-40), and I shall dub it the Gaṅgeśa-Matilal model. One obvious objection is that, since the defining characteristic of knowledge is simply truth, this model cannot sustain a notion of justification. To press this objection, however, would be a mistake, as we shall now see.

[9] A somewhat similar reconstruction is given by Mohanty (1992: 228).

[10] *tadvati tatprakārakatvam*. See Mohanty (1966: 9-41, 100-1).

4.3 The Notion of Evidence in the Gaṅgeśa-Matilal Model

The term 'evidence' in the theory of knowledge usually means one of two things. It is frequently used in the sense of data or input, just as one speaks of the evidence for a theory, the set of observational data on which the theory rests. This usage need not be tied to the notion of a sensory 'given'; it might be extended on information-theoretic lines, especially if one sees the cognitive faculties as akin to computational, information-processing devices. The term 'evidence' is also commonly used to designate the *justification* for a knowledge-claim, or the reasons on which the claim is based. If challenged, one would cite such 'evidence' to back up one's claim to know. So the 'evidence' for a belief is either the empirical ground/ causal input on which the belief rests, or the reasons one could cite to justify its acceptance. Both these senses are implicit in some form in the *pramāṇa* theory. I quote from Matilal:

> While talking about *pramāṇa*, one has to emphasize its dual character: evidential and causal. A *pramāṇa* provides evidence or justification for regarding a cognitive episode as a piece of knowledge. It is also regarded as the 'most effective' causal factor that gives rise to a particular cognitive episode. The theory of *pramāṇas* in this way becomes (secondarily) a theory of justification as well (1986: 35).
>
> In the discussion of 'justified true belief as knowledge', justification is usually conceived in terms of an argument with evidential support. In the *pramāṇa* theory, however, it is frequently asked about an object x or a thesis p, what is the *pramāṇa* for x (i.e. x's existence), or for p (being true)? And the citation of a *pramāṇa*, that is, a (faultless) causal factor which (most efficiently, vide Pāṇini) generates an awareness (and hence a true awareness) of x or p, would be regarded as an acceptable answer· (1986: 136, fn.54).

I shall use perception as an illustration. The *pramāṇa* in perception, i.e. the 'most efficient' causal factor, is the perceiver's sense-faculty, and the operative condition (*vyāpāra*) is her sensory connection with an object or part of an object. The "I+V → R" schema is instantiated here as

(Sense-organ + sense-object connection) → perceptual thought.

The sensory connection is brought about by the *operating* sense-organ, and is the basis for an "information-link" (c.f. *vijātīya-saṃyoga*) between the perceiver and the object. It marks the difference between a person who is actually seeing something and a person who simply has an unexcercised capacity to see. When we want to describe the *pramāṇa* interacting with a particular context or environment, we specify the operating relation (*vyāpāra*) in that context. In this way, a description of the operating condition can become also an account of the empirical evidence, in the sense of 'data' or 'input' on which token cognitive episodes rest.

Let us now look at the second, "reason-giving", sense of evidence. According to the Gaṅgeśa-Matilal model, a person's belief counts as knowledge if and only if it meets the various conditions set out above. But that does not entail that the person *knows* that the belief is knowledge, because she may not *know* that it meets those conditions. To quote again Matilal:

> The question of justification arises, in this view, only at the second level when one tries to ascertain the knowledgehood of the acquired belief. According to Nyāya, to know and to know that one knows are two distinct events, caused by two distinct sets of causal conditions. The second level knowledge, i.e. the knowledge of knowledge that p, is usually a sort of implicit inference which immediately follows the episode of knowledge *simpliciter*. The basis of this inference will be an evidence, and this takes the role of the so-called justification.........[W]e generally use two types of inference to establish knowledgehood or truth of the occurrent belief. One is based upon 'confirmatory behaviour' as evidence, and the other upon 'likeness with the familiar' as evidence. Another type may use 'assurance about the operation of adequate causal factors' as evidence. In any case, if the inference is right, it will establish knowledgehood and the required *justification* will be given. This means that the person now not only has knowledge (an occurrent true belief) but also has *a right to be sure.* He is now entitled to *call* his cognition a case of knowledge (1990: 71-2).

The justification of a knowledge-claim, therefore, is the 'reason' (*hetu*) on the basis of which one can infer it to be true. One such way to justify a knowledge-claim is to cite the *pramāṇa* which gave rise to it: he knows the book is here because he acquired the belief perceptually and his perceptual faculties are in good working order. The *pramāṇa*

is here the premise or 'reason' in an inference, the inference that a belief is true because it is generated by a *pramāṇa*. Beliefs can be justified by citing the means or processes by which they were acquired, provided those processes are 'accredited'. The same knowledge-claim might be further justified by citing more direct evidence for its truth, thus: he knows the book is here because he saw me carry it in. This is the forensic evidence by which beliefs can be confirmed without reference to their origin.

This gap between knowledge and justification has an important connection with the problem of individuating *pramāṇas*. The discussion of sections 4.3 and 4.4 shows that the use of the term "*pramāṇa*", in a particular case, to designate a particular entity is correct only if that entity is performing a certain role with respect to a knowledge-event. So we should not say, for example, that perception *per se* is a *pramāṇa* in this sense, but only that individual instances of perception are *pramāṇas* when they lead to knowledge-events. I shall call this the "case-by-case" conception of *pramāṇas*. Thus, π is a *pramāṇa* iff the *statement* "S knows x to be f via π" is true, i.e. iff (i) the particular cognitive event that x is f is true and (ii) it is caused by π. The whole problem of justification now shifts to the second level: how do we discriminate between *pramāṇas* and mere pseudo-*pramāṇas* (*pramāṇābhāsa*), between 'accredited' and 'unaccredited' means? Suppose a dice is rolled, and I guess correctly that it is a five. Here "guessing five" is to be counted as a *pramāṇa*, according to the "case-by-case" conception. But suppose now the dice is rolled again and I guess wrongly four. Then "guessing four" is in this instance a pseudo-*pramāṇa*. Clearly, there is nothing to tell these two apart, other than the truth of the resulting belief. It is for this reason that I could not justify my first knowledge-claim by citing the *pramāṇa* "guessing five". On the other hand, we can, at least in principle, distinguish between perceptual *pramāṇas* and pseudo-*pramāṇas*. For example, we can enquire into the lighting conditions, the proper functioning of the subject's perceptual faculties, the relative motion of the subject and the object, and other known sources of perceptual error. These have been partly codified by Gaṅgeśa in his theory of *guṇas* "good factors" and *dośas* "faults" in the causal process (c.f. Mohanty,

1966: 51-8). The conclusion to which we are drawn is that the method of citing the causal origins (*pramāṇa*) of a belief as a means of justifying it succeeds only when there is a way to distinguish, at least in principle, the particular case from pseudo-*pramāṇas* of the same type, and moreover, to do this without reference to the truth of the belief. The attributer must have a *verifiable criterion* for distinguishing between proper and fake instances. Because, in the case of perception, there is such a criterion, we may say that perception is a *Pramāṇa,* using the capital letter to show that we are now talking about the general type, not about individual cases. Guesswork, however, is not a *Pramāṇa,* even though particular instances of guesswork may lead to true beliefs.

The Gaṅgeśa-Matilal model emphasises a very general distinction, namely the distinction between *what makes* something a *pramāṇa* and *how to tell* that it is a *pramāṇa*. That is to say, we should distinguish between *principles* of accreditation and *criteria* for ascertaining accreditation. A principle of accreditation is a set of conditions that are necessary and sufficient for an entity to be a *pramāṇa* as opposed to a pseudo-*pramāṇa*. According to the Gaṅgeśa-Matilal model, an entity is a *pramāṇa in a particular epistemic situation* iff it leads *in that situation* to a true cognition episode. A criterion for accreditation, on the other hand, is a verification procedure, a test which the knowledge attributer can apply to determine whether or not the entity is a *pramāṇa* or merely a pseudo-*pramāṇa*. It belongs to the 'second-level', the level of ascertaining the knowledge-hood of a putative knowledge-episode. Such verification criteria do not always exist (c.f. the case of guesswork), and only when they do can the *pramāṇa* be cited as evidence for the truth of the belief. A putative means of knowing for which such a criterion exists is able to play the "double role", justificatory and causal, and the type to which it belongs is thereby elevated to the status of a *Pramāṇa*. It is to this criterial function that Mohanty draws our attention, when he remarks that "the theory of *pramāṇa* provides the critical norms, and the question whether a cognitive claim is valid or not is to be judged in the light of these norms" (1992: 272). According to most Indian philosophical systems, perception is a *Pramāṇa*, and so too is inferential reasoning. The

distinctive Nyāya doctrine is that language also is a *Pramāṇa*, and it is this doctrine which I would like now to discuss.

4.4 An Epistemology of Interpretation?

What is a language? The Nyāya answer to this question is deeply rooted in their conception of the general philosophical enterprise. As *pramāṇikāḥ* 'epistemologists', their leading interest is on the epistemological subject, and on the processes and methods available to her to secure a corpus of true belief. As part of this, they claim that the primary function of a language is as a means (*pramāṇa*) for the expansion of one's belief base and the justification of one's cognitive claims. I quote Matilal:

> [W]hat we call the philosophy of language in India has always formed a part of the classical philosophers' general epistemological inquiry, part of the *pramāṇa-śāstra*, the theory of 'evidence' for belief or knowledge (1990: 4-5).

A *pramāṇa* is a cognitive mechanism, a process leading from input data of a certain sort to an output in the form of beliefs. The thesis that language is a *pramāṇa* is therefore to be understood partly as claiming that in studying language we are seeking a theory of language-processing, an explanation of the ability of a competent language-user to move from the auditory perception of certain string of sounds to the formation of a belief of some kind. And, since a theory of language-processing is at least part of a theory of interpretation, that is to say, a theoretical representation of the practical ability of a language-user to understand the utterances of others, the conception of language as a *pramāṇa* leads the Nyāya to attach central theoretical importance to the notion of what it is to understand a language. I would like to examine here the Nyāya theory of interpretation, and the way in which epistemological issues enter the picture.

The Nyāya claim that our language-processing mechanism has the following elements. The result or output of the process is an interpretational belief-state, called a *śābdabodha,* a 'language-derived thought-episode'. The 'instrument' in the process is the hearer's auditory perception of an uttered sentence. The operating condition

(*vyāpāra*) is her knowledge of a meaning theory for the language. So the (I + V → R) schema here is instantiated as

> Auditory perception of sentence-elements + knowledge of meaning theory → Tokening of an interpretational belief-state.

The Nyāya add that there are four auxiliary conditions. One is simply that the sentence elements must be in physical and temporal proximity with one another (*āsatti*). A second is that the sentence must be syntactically well-formed (*ākāṅkṣā*), and a third is that it must be unambiguous, or else disambiguated *via* consideration of the speaker's intended meaning (*tātparya*).

The fourth condition is that the sentence must be semantically 'fit' (*yogya*). This condition of 'fitness' (*yogyatā*) is of considerable importance, and is worthy of close examination. Suppose person S utters the sequence of sounds

> [*] Rama cooks rice.

A second person, A, hears S's utterance of [*] and, according to the Nyāya, comes to form one of two beliefs. If A has no reason to disbelieve that Rama cooks rice, the belief which arises is simply that Rama cooks rice. A suitable reason for disbelief might include either direct evidence that Rama is not cooking rice, or indirect evidence concerning the competence and reliability of S. And if A does have such a reason, the resulting belief is that S *said that* Rama cooks rice. The Nyāya say that the first belief, a world-directed as opposed to speaker-directed belief, arises if the 'fitness' (*yogyatā*) condition is met. Note first that in either case, the output is a belief concerning the proposition that Rama cooks rice, a proposition which we might regard as constituting the meaning of the uttered sentence[11]. Let us say, therefore, that the hearer of the utterance [*] is able to interpret it because she knows both what the uttered sentence means, and also what *force* the utterance carries, where a theory of the force of an utterance is a body of general psychological and psycho-linguistic principles which determine the kind of linguistic act performed by any given linguistic utterance. It takes

[11] I discussed in chapter 3 the Nyāya analysis of sentential content as a special sort of Russellian proposition with two distinct components.

as given that the sentence has a certain propositional content, but specifies whether the proposition is asserted, commanded, queried, and so on. The Nyāya 'fitness' (*yogyatā*) criterion articulates the conditions under which the proposition expressed by an utterance should command the assent of the interpreter. This is a function both of the proposition itself, or rather of the hearer's evidence for its truth, and of the hearer's knowledge of general psycho-linguistic facts about the speaker, such as her reliability and linguistic competence. The 'fitness' condition thus belongs within the purview of the theory of force rather than the theory of meaning[12]. In this section, I will discuss the epistemological dimension to the Nyāya theory of force. I postpone discussion of the Nyāya conception of the theory of meaning until the next section.

Fitness (*yogyatā*) is usually defined as the absence of 'incompatibility' between the elements in the putative content of the interpretational state[13]. The paradigmatic example of a statement which fails the fitness condition is the statement "She sprinkles [the field] with fire" (*vahninā siñcati*). This is contrasted with the 'fit' sentence "She sprinkles [the field] with water" (*jalena siñcati*). This notion of "fitness" has been the source of considerable controversy, both among the Naiyāyikas and their latter-day interpreters. One reading gives it a significance within a framework of ontological categories. It is claimed that the sentence "She sprinkles with fire" is unfit because, though grammatically proper, it violates a principle of ontology: sprinkling is an activity capable of being performed only with water and similar fluids, not with fire. According to this proposal, then, there is an ontological framework, for example the Vaiśeṣika system of ontological categories, which determines some notion of physical possibility. A putative structural content or state-of-affairs is "fit" iff it is physically possible.

[12]We might stipulatively define a special sort of speech-act as follows: S *conveys* that p iff (i) S asserts that p, and (ii) p is true. The 'fitness' condition is the account of the hearer's capacity to recognise the speech-act of 'conveying', a capacity which draws both on psycholinguistic information about the speaker, and on factual information about the world.

[13]e.g. Annaṃbhaṭṭa (1983: § 67): *arthābādhaḥ yogyatā.*

A problem for this reading is that Nyāya does not draw any sharp distinction between states-of-affair which are physically impossible and states-of-affair which are physically possible but non-actual. As Matilal remarks,

> [t]he fitness condition is broadly defined to take care of at least two major cases of 'misfires' in testimony: (a) when the objects referred to by the elements do not fit, an impossible combination - e.g. "a barren woman's child", and (b) when the objects may fit in a possible world, but not in actuality, as somebody saying "there is a snake in the next room" when I know that there is none. The second case takes care of the cases of the so-called meaningful but false utterances (1990: 66).

A second reading of the notion is thus that a structural content is "fit" if and only if it is true. The purpose of the 'fitness' condition would then be to veto the 'world-directed' interpretation of any false statement. Although this is the way the condition is usually understood, this view contrasts sharply with a natural elaboration of the notion of an interpretation as an attempt to 'understand' or 'make sense' of the actions and utterances of others, or the sentences of a text. For there seems to be no *prima facie* reason to suppose such utterances or textual fragments to be true, and there is a clear sense in which we can understand someone's remarks without assuming that they are. There is indeed an argument to the effect that the interpretation of an utterance must be independent of the truth-value of the sentence uttered. The argument derives its force from this truism, that it is possible to understand a statement even if it is false. One form of the argument is given by Dummett:

> For a sentence to be able to be used to convey information, it must be possible to understand it in advance of knowing it to be true. Frege considers, specifically, an identity-statement, that is one of the form 'a is the same as b', and argues that if, in order to understand the statement, the hearer is required to know the reference of the terms 'a' and 'b', then, if it is true, he must , if he understands it, already know that it is true; hence, on this supposition, such a statement could convey no information (1981: 130).

Even in Dummett's view, there are indeed sentences which we cannot understand without thereby knowing that they are true, for example an identity sentence flanked by two occurrences of the same singular term ("a = a"). But what marks off such a sentence

from the informative "a = b", where the identity is flanked by different singular terms, is just the fact that we can understand the latter in advance of grasping its truth-value. A similar line of reasoning is followed by Mohanty (1992: 252 - 253). It is also implicit in Frege's distinction between "entertaining" a thought and "judging" it to be true.

This argument has an implicit assumption, that all the rules of interpretation are regulative, that they supply instructions for the agent to follow, a test or verification procedure by means of which the correctness or incorrectness of an interpretation can be ascertained[14]. It is true that a meaning theory is known to the hearer (*saṅketajñāna*), and such knowledge is actively involved in the hearer's interpretational procedure. However, according at least to some of the Navya-Naiyāyikas, there is no corresponding requirement that the satisfaction of the 'fitness' condition be known by the interpreter. At most, it is required that the interpreter does not have any reason to suppose that the sentence is unfit[15]. The fitness condition might thus be regarded as non-regulative, as merely setting a standard of correctness for someone who is appraising the hearer's interpretations. It seems that we should distinguish between two different notions of what it is to interpret a sentence. The Nyāya is trying to articulate a proprietary notion according to which the attribution "S *properly* interprets utterance s as p" entails that p is true. In this, it resembles the locution "S perceives that p". The point of this is that "properly interprets" then becomes an epistemic verb. It satisfies the definition of knowledge in the Gaṅgeśa-Matilal model, since it follows from the definition of "proper interpretation" that the belief-token involved is (i) true), (ii) 'about' the proposition p, and (iii) caused by the auditor's perception of statement s. That is to say, the assertion that S properly interprets s as p entails the assertion that S knows p *via* s. It seems, however, that ascriptions using the English verb "understand", i.e. "S understands s as

[14]Compare Evans, (1982: 17, fn. 17): "Dummett's view starts from the observation that there is no question of making it a requirement, for understanding a sentence, that one know its truth-value. This leads him to think generally that the sense of an expression is a method or procedure for determining its Meaning. So someone who grasps the sense of a sentence will be possessed of some method for determining the sentence's truth-value."

[15]c.f. Matilal, (1985: 405, fn. 3); Bilimoria (1988: 207 - 8).

p", are weaker. They draw only on what the interpreter can ascribe to themselves, and are therefore truth-neutral. This weaker notion of interpretation, to continue the analogy with perception, would be like the locution "S *seems to* perceive that p", which is neutral with respect to the truth of p.

There is some evidence that the Navya-Naiyāyikas themselves draw this distinction. In Nyāya, the content of a belief is reported by describing its 'structural form' (*viṣayatā*). That is to say, Nyāya specifies which entity is the "subject" or qualificand (*viśeṣya*) of the belief, which entity is the "predicate" or qualifier (*viśeṣaṇa*), by means of which connector (*saṃsarga*) they are related, and so on. For example Harry's belief that the Eiffel Tower is in Paris would be reported by saying that he has a belief whose qualificand is the Eiffel Tower, whose qualifier is Paris, and whose connecting relation is location. This mode of content ascription is called the ascription of a 'conditional content' (*nirūpya-nirūpaka-bhāvāpanna-viṣayatā*) (c.f. Matilal, 1968: 28-9). Nyāya, however, thinks that we can ascribe beliefs in another way, a way according to which the ascriber is committed to the truth of the belief ascribed. Harry's belief would now be reported as a belief concerning the presence of the Eiffel Tower in Paris, where the mention of the presence of the Eiffel Tower in Paris is something to which the ascriber can appeal only because it is (by her lights) a truth. Such ascriptions are called the ascription of a 'qualificative content' (*viśiṣṭa-viṣayatā*) (c.f. Matilal, 1968: 28-9; Mohanty, 1966: 34, n.69). They are ascriptions which are *de re* with respect to the fact grasped by the belief.

When the 'fitness' condition is read as requiring that a world-directed interpretational belief-state be true, it is drawing upon the stronger, normative conception of "proper", and hence truth-entailing, interpretation attribution. Since in this view interpretation is governed by criteria which are not necessarily within the ken of the interpreter, we might see the interpretational belief-states as defeasible "interpretation-claims". It will always be open to the interpreter later to revise her interpretation, should she come to acquire evidence that the fitness rules have been violated. Such evidence

might bear directly on the truth-value of the ensuing belief, or, indirectly, on the reliability of the utterance's author. But the process of verification, to repeat, is distinct and posterior to the act of interpretation.

At the heart of the Nyāya picture is the idea that the language-processing mechanism issues sometimes, not in author-directed speech-act ascriptions, but in world-directed beliefs. The theory of 'fitness' has a double function here. On the one hand, it isolates a proprietary, normative concept of *proper* interpretation such that a sentence is interpreted *properly* iff the ensuing world-directed belief is true. Such interpretations are called the *śābdabodha*, linguistically-based knowledge-episodes. On the other hand, it articulates the conditions under which the language-process issues in a world-directed, rather than an author-directed, belief in the first place - the conditions under which the utterance commands the assent of the interpreter. The main condition for the output of the process to be a world-directed belief is that the interpreter has no reason to suspect that the statement is false. Such may be the case when we read textbooks or newspapers, or take advice from acknowledged experts. When Strawson remarks that "[o]nly a very naive, a far from mature, audience would be quite unaware of the possibility of honest mistake, or of intention to mislead or of sheer casualness or carelessness, on the part of the communicator" (1980: 284-5), he is articulating some of the considerations entering into the fitness condition. These considerations involve general psychological and psycho-linguistic beliefs about the speaker, and, moreover, general beliefs about the world and the plausibility of the utterance in the lights of the interpreter.

The existence of such a condition need not undermine our description of the hearer as a 'mature' language-user, or of the project of interpretation as a form of rational activity. For the merest suspicion of "honest mistake, or of intention to mislead or of sheer casualness or carelessness" would be enough to undermine the possibility of this kind of interpretative outcome, and the interpreter would then revert to 'exegesis',

that is, to the attribution of a certain sort of speech-act to the author. This point has been made well by Gadamer:

> Just as the recipient of a letter understands the news that it contains and first sees things with the eyes of the person who wrote the letter, i.e. considers what he writes as true, ... so we understand texts that have been handed down to us on the basis of expectations of meaning which are drawn from our own anterior relation to the subject. And just as we believe the news reported by a correspondent because he was present or is better informed, we are fundamentally open to the possibility that the writer of a transmitted text is better informed than we are... . *It is only when the attempt to accept what he has said as true fails that we try to 'understand' the text, psychologically or historically, as another's meaning* (1975: 262, my italics).

Nyāyasūtra 1.1.7 states that an utterance is a *pramāṇa* iff it is uttered by a reliable person (*āpta*). Should this be understood as defining a *principle* or as a *criterion* for the accreditation of utterances? I believe both answers are represented in Navya-Nyāya. Annaṃbhaṭṭa, for example, interprets the *sūtra* by saying that a "reliable person" or *āpta* is someone who is speaking the truth as regards this particular utterance[16]. Vācaspati too had observed that even a most disreputable person might be on occasion an *āpta*, an authority with respect to a certain remark. He offers the example of a thief who, having stolen a traveller's possessions including his means of transport, honestly directs him to the nearest town[17]. So it would seem that for these authors the correct definition of a "reliable person" is someone who, with respect to the particular utterance, is speaking truly. To give an example, the method "believe the headline of the Guardian on 25.11.92" might be a *pramāṇa* (if the headline is true), but "believe the headline of the Telegraph on 25.11.92" might not be. Thus, if we follow the line of exegesis represented by Annaṃbhaṭṭa, *Nyāyasūtra* 1.1.7 is understood as stating the usual *principle* of accreditation in the Gaṅgeśa-Matilal model. These Naiyāyikas now see the fitness condition as stating a *criterion* for the accreditation of utterances. The semantic fitness of an utterance should be something which the attributer can ascertain and use to

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16 *āptaḥ tu yathārthavaktā*, (1983: § 66).
17 see *Tātparyaṭīkā* under *Nyāyasūtra* 1.1.7, in Gautama, (1936).

distinguish utterances which can be cited as evidence for the truth of the interpretation. They therefore take "fitness" (*yogyatā*) to mean something like "likelihood of the utterance to be true in the lights of the interpreter", or perhaps even "coherence with the interpreter's other beliefs". Knowledge of what is ontologically possible will, no doubt, inform this conception. Suppose I form the belief that there is a snake in the next room, on the basis of your assertion to that effect. Could I cite, as my evidence for believing such a thing, that I was told it? The answer, according to this conception, may be 'yes', but only if this proposition fits or conforms with my general expectations. Sitting in a library room, it will not be, but standing in a zoo it could be. The notion of 'fitness' is given a subjective, verificationist sense.

The majority of the Navya-Naiyāyikas, however, say an utterance is 'fit' if and only if it is true, whether or not it is ascertained as such. Satisfaction of the 'fitness' condition is here not the criterion but the *principle* for classifying which utterances are "accredited means of knowing or *pramāṇas*, and which are only pseudo-*pramāṇas*. What now are our *criteria* for telling a *pramāṇa* like "believe the headline of the Guardian on 25.11.92" from a pseudo-*pramāṇa* like "believe the headline of the Telegraph on 25.11.92", without looking directly to the truth of the ensuing beliefs? The answer given by Gaṅgeśa is that the quality of the source, its reliability, sincerity and competence, can be appealed to in this matter. An *āpta* 'reliable person or authority' is here defined, not as someone who is, on this occasion, speaking the truth, but as someone possessing certain general features, features which, moreover, the interpreter or attributer can ascertain. I can justify my belief that there is a snake next door if I can point to the general reliability and sincerity of the person, perhaps the zoo-keeper, who has told me so.

We should not expect a verification procedure to be infallible: beliefs are sometimes justifiable even though false. On the other hand, the results of the procedure should be significantly correlated with the truth of the beliefs. Whether either of the above proposals, or a combination of both, offers a workable method for distinguishing

between reliable and unreliable utterances is a larger issue than can be considered here: it is far from clear, for example, whether the notion of a speaker's competence can be given a coherent verificationist sense[18]. But this at least is what the Naiyāyika is committed to when she argues for an epistemology of interpretation (*śabdapramāṇa*). Let me note finally that epistemology enters the Nyāya picture *via* the notion of a veridical interpretation (*śābdabodha*), and not through some form of knowledge-transmission principle, i.e. a principle to the effect that if A knows that p, and A tells B that p, then B knows that p. Gaṅgeśa, for example, notes that even a parrot can be interpreted veridically, although we would not want to say that the parrot knows anything[19]. In Nyāya, the linguistic rules are not for regulating the communication of knowledge, but for governing the rationalisation of linguistic data, and in describing these rules, they are describing an interpretative and not, in the first instance a communicative, practice. Because of this, the connection that undoubtedly existed between philosophy of language and epistemology never prevented the Indian philosophers from thinking about more formal features of language.

4.5 Interpretation and the Theory of Meaning

The Nyāya theory of interpretation is a theory of language-processing: it explains how the competent language-user can move from an auditory perception of an utterance *qua* noise to a belief having a determinate content. The Nyāya fitness condition is part of the theoretical description of the principles which determine the *force* with which the sentence is uttered, for it articulates the conditions under which the proposition expressed by an utterance commands the assent of the interpreter. There must, however, be another part in the theory of the language-process, namely, that part which specifies the content of the output belief by ascribing a certain meaning to the sentence uttered. On

[18]The Buddhists criticise Nyāya on just this point. Kamalaśīla observes that " Even if we agree that there are 'reliable persons' (*āptāḥ*), there is no accredited means by which to ascertain their good and bad qualities, since these [qualities] are imperceptible [dispositions], and [the same] bodily and verbal behaviour can be made on the basis of many different intentions." *Pañjikā* under TS 1509 (1917: 537).

[19]See Matilal, (1990: 67).

hearing S's utterance of "Rama is cooking rice", the hearer A forms a belief concerning the proposition that Rama is cooking rice, whether this be the belief that S said that Rama is cooking rice, that S asked whether Rama is cooking rice, or just that Rama is cooking rice. The task of the theory of meaning is to show how a language-user can assign a propositional content to any such sentence in the language, even if it has never before been heard. Having now discussed the fitness condition, and with it the epistemological dimension to the Nyāya account of language processing, I would like to examine the role of a meaning theory in this account.

The Nyāya argue that a hearer's ability to interpret sentences never before encountered shows that she must know a compositional meaning theory for the language in question, that is, a theory which specifies how the meaning of every sentence can be derived from the meanings of a finite stock of sub-sentential elements and rules of composition[20]. Knowledge of a compositional meaning theory is said to be the 'operating condition' (*vyāpāra*) for the language-processing mechanism. For a discussion of this doctrine, we may return to the opening section of the *Śaktivāda*. At the beginning of the *Śaktivāda*, Gadādhara says this:

> [The technical term] *vṛtti* [is used to denote the relation] of a word to its meaning (*artha*). [It is of two kinds:] literal (*saṅketa*) and pragmatic (*lakṣaṇā*).
>
> The term 'word-meaning' (*artha*) denotes exactly that which is conveyed by the word through the *vṛtti*-relation[21].

Gadādhara's explication of the notion of word-meaning requires considerable supplementation from his commentators to make much sense. Two initial observations, however, can be made. First, he draws our attention to the fact that the term 'meaning' has a plurality of different uses, and that we must distinguish between the notion of literal meaning and the phenomenon of pragmatic or hearer-meaning. I discussed this

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[20]According to the Nyāya, the composition rules are grammatico-syntactic features (*ākāṅkṣā*) of the statement. Gadādhara notes that "it is on the strength of *ākāṅkṣā* that the relation between the word-meanings is given" (1927: 39).

[21]*saṅketo lakṣaṇā cārthe pada-vṛttiḥ. vṛttyā pada-pratipādya ity abhidhīyate.* (1927: 1- 4).

phenomenon in chapter 1, and shall not say anything more about it here. The second observation is that there is an appearance of circularity in Gadādhara's two statements. In the first statement, the notion of a meaning relation (*vṛtti*) seems to be explicated in terms of the notion of a meaning-entity (*artha*), but in the second statement, the notion of a meaning-entity is itself explicated in terms of the notion of a meaning relation. In fact, however, there is no circularity: both notions are explicated in terms of a third notion, that of the meaning of a sentence (*śābdabodha*[22]). To see this, we must look at the commentaries.

According to the commentators, Gadādhara implicitly assumes a standard Nyāya doctrine about word-meaning. This is the principle that

> The meaning relation (*vṛtti*) for a word is that relation which is the 'ground' (*aupayogika*) for the interpretation (*śābdabodha*) of any sentence containing the word[23].

The commentators add that Gadādhara's explication of the notion of a meaning-entity is to be read as asserting that

> The meaning (*artha*) of a word is that entity which, due to [being a relatum of] the relevant meaning relation, enters the meaning (*śābdabodhaviṣayatā*) of any sentence containing that word[24].

What these two principles show is that the notion of word-meaning acquires significance, in the Nyāya theory, only within the context of a description of a language-user's ability to interpret whole sentences. It is the notion of sentence meaning which is explanatorily prior in this theory. This is presumably due to the fact that a sentence is the smallest linguistic unit capable of being true or false, the smallest unit from which information can be derived by exercising one's language-processing mechanisms. The Nyāya are aware too that the behavioural evidence for a theory of meaning attaches to sentences, not to words. They sketch the following picture of language acquisition based on observing the speech-behaviour (*vyavahāra*) of members of the linguistic

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22The term '*śābdabodha*' suffers from an act-object ambiguity - it denotes both the belief-episode which is the output of the language-process, and also the propositional content (*viṣayatā*) of this belief. It is usually clear from the context which of these two senses is intended.

23Vivṛtti, (1929: 1): *vṛttiḥ śābdabodhaupayikaḥ sambandhaḥ*. See also Mañjuṣā, (1927: 4). Here the term '*śābdabodha*' refers to the belief-episode.

24Ādarśa, (1892: 2); Mañjuṣā, (1927: 5). The term '*śābdabodha*' refers here to the content of the belief.

community. One person is observed to utter the sounds “Bring a cow” and a second person is observed to go and fetch a cow. On a second occasion, a person utters the sound “Bring a horse” and someone fetches a horse. On still another occasion, a person is observed to utter “Tie up a cow”, and a corresponding action is seen to ensue. Such evidence bears upon whole sentences, but now a process of positive and negative correlation (*anvaya-vyatireka*) leads the observer to infer the meanings of the sub-sentential components from the meanings of whole sentences[25].

Gadādhara’s principles encode another element in the Nyāya theory. The Nyāya take the language-user’s ability to interpret all the sentences of a given language to be explained by her knowledge of a compositional meaning theory for that language: the meaning theory is ‘psychologically real’ for the language user. Tacit knowledge of the meaning relations is attributed to language-users to explain, for example, how it is that a language-user can interpret any sentence containing the word “pot” as being about a pot. The assumption seems to have been that an interpreter could not move from an auditory perception of the utterance “The pot is blue” to a belief that the pot is blue, or else a belief that the speaker said that the pot is blue, unless the interpreter in some way internally represents the information encoded in the meaning clause <“pot” refers to a pot>, and draws upon that information in interpreting sentences containing the word “pot”. Word-meaning, then, is prior to sentence-meaning in the order of interpretation, even if the concept of word-meaning is dependent on that of the meaning of a sentence.

The theory of meaning in Nyāya is part of a theoretical explanation of our ability to interpret the sentences in the language we speak. The features of the theory so far discussed might be clarified as follows. Suppose we formally characterise a language L as a function from strings of sounds or marks to propositions; thus $L(\sigma) = p$, where σ, a string of sounds, is a sentence in L and p, a proposition, is the meaning of σ in L. According to the Nyāya, the meaning of a sentence is not a truth-condition but something more finely individuated, which they call a content-structure (*viṣayatā*). As I

[25]Vivṛtti, (1929: 1). See also Cardonna (1967) and Matilal (1990: 14).

mentioned in chapter 3, a content-structure is comprised of two components, a truth-conditional component and a 'guise' component. Nothing here, however, depends on which theory of propositional content is adopted. Suppose now that L is the ideolect of a person A. Then a theory of A's understanding is a theory which correctly explains her ability to move from the auditory perception of any sentence σ in L to her tokening of a thought whose content is or includes p, where p = L(σ). The full specification of the content of this thought, which might be a thought simply that p or a thought that so-and-so asserted, commanded, queried, etc. that p, is the role of the theory of force for A's interpretative capabilities. The meaning theory for A is that part of the theory of A's interpretative capabilities which explains her ability to compute the function L. The Nyāya claim is that such a theory must be compositional. Suppose then that L is a recursively specifiable function, so that it is possible to discern a finite vocabulary of sub-sentential elements, which are correlated with propositional constituents, and a finite set of combining operations from which one can derive the meaning of each sentence in L from its constituent sub-sentential elements. As we saw in chapter 3, the propositional constituent correlated with a nominal is, in Gadādhara's theory, an ordered pair of an object and a property, but once again this is of no particular relevance here.

There may be many distinct recursive specifications of L, many different ways of giving it a compositional semantics. Let us suppose, however, that one such specification M enters the explanation of A's ability to interpret the sentences of L, presumably by being internally represented by A. We might say that M 'grounds' A's understanding of L. It is now possible to recast the two principles which explicate the notions of a word-meaning relation and a word's meaning-entity. The explications are equivalent to the following:

> A word w 'means' an entity x in L iff w is correlated with x in M, the meaning theory which grounds A's ability to interpret the sentences of L.

Dummett calls a theory of meaning 'atomistic' if it attempts to give an account of the meanings of words in isolation from their contribution to the meanings of sentences in

which they occur, and contrasts such theories both with 'molecular' theories of meaning, which claim that an account of the meanings of words can be given only in terms of their contribution to the meanings of sentences of which they form part, and with 'holistic' theories, which claim that the meaning even of sentences can be given only in terms of an account of the entire language. Since, in the above explication, a word will only be correlated with an entity in M if that entity enters the content of every sentence containing the word, this formulation shows Gadādhara's theory to be molecular rather than atomistic - the meaning of a word is explained in terms of its contribution to sentence meanings. Gadādhara in this way avoids both the extreme atomism of the Bhāṭṭa school, as well as Bhartṛhari's 'Quinean' semantic holism[26]. In spite of their appeal to sub-sentential mandates, the Nyāya does not regard reference as a primitive, 'building-block' relation. The meaning of a sub-sentential expression is given in terms of its contribution to the meanings of sentences in which it occurs.

The formulation also shows that the theory is in the first instance a theory of meaning for the ideolect of a particular person, and not for a public language. The Nyāya, however, stress the inter-subjectivity and normativity of a linguistic practice when they say that linguistic rules are fixed by 'decree'. Indeed, the above explication of word-meaning constitutes only half of the full Nyāya picture, and it is to the other half that I now turn.

[26]For these views, see Matilal (1990: 106 119). The usual classification of the Nyāya with the Bhāṭṭa as being atomistic seems, if I have understood this passage in Gadādhara correctly, to be too simplistic.

4.6 Conventionalism and the Authority of the Name-Giver

Suppose two people understand the same language L. Each is capable, as a result of her language processing capacities, to move from an auditory perception of any uttered sentence σ of L to the tokening of a thought whose content at least partly concerns the proposition p, where $p = L(\sigma)$. Each, moreover, is able to do this in virtue of having internally represented a compositional meaning theory for L. Can we demand any more than this of someone who is a full participant of a public linguistic practice? In particular, can we demand that each participant must know the *same* compositional meaning theory for the language? The Nyāya give an affirmative answer to this, and claim that the sub-sentential structure of a public language is itself fixed by a body of linguistic conventions. Gadādhara describes this doctrine immediately after his explication of the notions of a meaning-relation and meaning-entity cited above. He says this:

> A literal meaning rule (*saṅketa*) is a mandate (*icchā*) [whose form is either] "Construe this word as that object" or "From this word, this object should be construed" (1927:5).

Gadādhara here states that there are conventional mandates or decrees governing the way members of a linguistic community should interpret the sentences they hear. Such a mandate takes the form "Construe word w as object x" (*idaṃ padam amum arthaṃ bodhayatu*). This comprises a sentence "w is construed as x", embedded in the context "It is mandated that ...". The qualificand of the embedded sentence is the word w. The qualifier is the property 'being the cause of interpretational belief-states into whose content the entity x enters' (*x-viṣayaka-[śābda]bodha-janakatvam*). The convention is therefore a mandate whose structure is <Let word w be the cause of interpretational belief-states into whose content the entity x enters>[27]. According to the Nyāya, there will be such a mandate for each vocabulary item in the language. However, rather than speaking of a multitude of sub-sentential conventions, we can summarise the Nyāya

[27]Gadādhara often uses the passive version of this analysis. Thus: x is in the content of such interpretational-states as are caused by w (*ghaṭapadajanya-bodhaviṣayatā-niṣtha-prakāratā-nirūpiteśvareccha-viśeṣyatā ghaṭaniṣṭhā*).

doctrine as claiming that there is a convention among the population of language users to employ a particular compositional meaning theory in one's interpretative process. According to the Nyāya, the 'grammar' of a public language is not only psychologically real, but *socially real* as well. To put it another way, the Nyāya identify a public language not merely with a function from sentences to propositions, but with particular recursive specification of that function.

Gadādhara is now able to define the notion of the meaning of a word in a public language. He says this:

> As far as words like "meaningful expression" (*vācaka*) and "meaning-entity" (*vācya*) are concerned, the meaning of the verbal root [from which they derive, viz. √means] is [to be identified with a certain part of] the content of the mandate, namely, "cause of an interpretational belief state" (*bodhajanaka*). [The logical form of a mandate is <let word w be the cause of interpretational belief states into whose content the entity x enters>.] In [the sentence expressing] that [mandate], the agentive affix is attached to the word "word", which is the agent *qua* substratum. So in such [locutions] as "The word speaks about the object", "the word 'means' the object", the direct object affix is attached to the word "object", and serves to indicate that the verbal root [viz. "cause of an interpretational state"], has as its [grammatical] direct object just that entity which [enters] the content of the [aforementioned] interpretational belief state . [However], in such [locutions] as "The cow is spoken of by the word ["cow"]", "The cow is the 'meaning' of the word ["cow"]", the relation between the meaning of the verbal root, which is located in the word, [and the object] is indirect. [Gadādhara shows how to construe such passive locutions]. When the mandate has the second form ["From this word..."], the [above locutions] are to be construed the other way round. This is the accepted Nyāya view. (1927: 5-6).

Later on, he summarises his view by saying that "we use the term 'meaning' (*śakti*) to designate just that relation which is the 'ground' (*prayojaka*) of the interpretation of sentences containing the word, as determined by a mandate (*īśvarecchā*)"[28]. Thus, the meaning of an expression in the public language L of a population P is given as follows:

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[28] *īśvarecchāyās tatpadajanya-śābdabodha-viṣayatā-prayojakaḥ saṃbandha eva tatra tatpadaśaktir iti vyapadeśa-niyāmakaḥ*. (1927: 44).

> A word w 'means' an entity x in L iff there is a body of mandates in P to ground one's interpretation of L in the meaning theory M, and w is correlated with x in M.

Gadādhara's commentator Sudarśanācārya (*Ādarśa*, 1892: 2. C.f. *Mādhavi*, 1927: 5) tries to justify the doctrine that grammars are normatively fixed as follows. Suppose someone interprets the sentence "The pot is blue" as saying that the pot is blue, but does so by interpreting "The pot" as blue and "blue" and as [the] pot (we must follow Nyāya in analysing the sentence as an identity). This person assigns the correct proposition to the sentence, but our intuition is that such a person does not know the meaning of the words "blue" and "pot". Thus, getting the sentential content right is not sufficient - it must be derived in the right way. This argument might well be faulted on the grounds that the hearer's error would show up in her interpretations of other sentences, such as "The pot is green", which would be interpreted as saying that the blue thing is green. Yet, as Davidson, has shown, there are transformations of reference assignments to words which leave invariant the assignments of truth-conditions to sentences. Sudarśanācārya, however, has said nothing against this 'inscrutability' of reference other than that it is counter-intuitive, although he has at least highlighted the fact that a single language can have many structurally distinct meaning theories.

The doctrine, however, has a number of drawbacks. An immediate criticism can be gleaned from Lewis, who considers a somewhat similar proposal, and rejects in on the following grounds:

> Why not say ... that a grammar Γ of L is used by P if and only if there prevails in P a convention to bestow upon each constituent in Γ the meaning that Γ assigns to it? *Reply*: A convention, as I have defined it, is a regularity in action, or in action and belief. It is essential that a convention is a regularity such that conformity by others gives one a reason to conform; and such a reason must either be a practical reason for acting or an epistemic reason for believing. What other kind of reason is there? Yet there is no such thing as an action of bestowing a meaning (except for an irrelevant sort of action that is performed not by language-users but by creators of language). Neither does bestowal of meaning consist in forming some belief.(1983: 178-9).

Lewis's notion of a 'bestowal upon each constituent in Γ the meaning that Γ assigns to it' is roughly equivalent to the idea that the language-user is mandated to ground her understanding of L in Γ. The objection, then, is that it cannot be a matter of convention which grammar or meaning theory one employs in one's language-processing capacity, since there is no sense in which one *decides* to employ one grammar rather than another. In Lewis's analysis, a convention is a self-perpetuating regularity, in which each person prefers to conform than not to conform. Yet one cannot prefer one sub-doxastic processing mechanism to another.

Another sort of objection follows on from this one. Even if one could somehow choose which grammar to internally represent, how would one know which one to choose? Since, by hypothesis, different grammars attach the same content to whole sentences, there is nothing in the overt behaviour of others which manifests their using one grammar rather than another. And if one language-user cannot tell which grammar another is using, what is the empirical content of the doctrine that grammars are socially or conventionally real? If the difference between a convention to use one grammar rather than another does not show up in the linguistic or non-linguistic behaviour of the members of the population, there seems to be no empirical content to the claim that the linguistic conventions operating within a population of language-users discriminate between distinct meaning theories for the same language.

The Nyāya theory has most plausibility when we consider the explicit introduction of new words into an already existing linguistic practice. Gadādhara distinguishes this category of term:

> And here [there are two kinds of mandate]. A 'technical rule' (*paribhāṣā*) is a mandate which is explicit (*ādhunika*), and a designator [whose mandate is 'technical'] is [called] a 'technical term' (*pāribhāṣika*). For example, such words as "*nadī*" and "*vṛddhi*", which were introduced by an author [Pāṇini]. The [other sort of] mandate (*śakti*) is a mandate which is of divine origin, and a designator [whose meaning rule is divine] is [called simply] a 'meaningful expression' (*vācaka*). For example, a word such as "(the) cow", which refers to [a thing] which is qualified by cowhood. The thing designated by

that [word "(the) cow"], i.e. the cow etc., which is the referent [of the word], is precisely [what we call] the meaning-entity (*mukhyārtha*). (1927: 5-6).

Mastery of such a word, which Gadādhara calls a 'technical' *pāribhāṣika* term, consists in the explicit knowledge that the word has been introduced by a stipulation of the form <Word w is to be used as a word for x>. The very existence of an overt stipulation provides one with a reason for interpreting the word in accordance with this rule, since each person knows that general co-ordination of usage will ensue if everyone conforms with the stipulation. It is from this fact, indeed, that the name-giver acquires authority over the linguistic practice which her decree sets up. The Nyāya in effect extend this model to the whole language. The use of every word in a public language is governed by a convention, and the convention rests on the authority of the person who introduced that word. When the originator of the convention is unknown, the Nyāya expedient is to say that it is a 'divine desire' (*īśvarecchā*). This again serves to emphasise the authority of the name-giver with respect to the convention they set up.

This account of conventions as mandates of the name-giver is indeed plausible for terms which are introduced explicitly into an already existing linguistic practice. The language-user hears the mandate and uses the semantic information encoded in it in her interpretation of any sentence containing the new term. She has, moreover, a good reason to obey the mandate, since she knows that by doing so she can align her interpretations with the rest of the linguistic community. As a description of the entire language, however, the account seems highly problematic. The usual objection to accounts of linguistic convention which are based on decree is that they are circular: the language-user must already know the language in which the decree is made. By claiming that the decree is a mental state or 'desire', the Nyāya circumvent at least this objection, but only at the cost, it seems, of making the decree unlearnable.

The objection I am pressing here applies equally to those who construe the Nyāya decrees, not as authoritative conventions, but as 'Kripkean' baptismal reference-

fixing acts[29]. Even if this is right for a certain class of terms, it cannot be an account of the entire language, since the baptismal acts are themselves statements. The Nyāya recourse to mandates might be a convenient way of describing what it is that language-users implicitly know, but cannot be made into a workable account of the conventionality and normativity of a linguistic practice.

Nyāya had a distinctive motivation for their doctrine that linguistic conventions rest upon the authority of the name-giver, which was to defend their conventionalism against the 'essentialism' of Mīmāṃsā. At *Mīmāṃsāsūtra* 1.1.5, Jaimini states that the word-object relation is "uncreated" (*autpattika*). His commentator Śabara explains that this means "not created by human convention" (*apauruṣeya*) or "permanent". It appears that the Mīmāṃsā thesis is that bearing its referent is an intrinsic and *sui generis* property of a word. At first, it may seem that such a doctrine is absurd. It is, after all, a platitude that words are arbitrary, in the sense that any sound is as good as any other in their capacity to act as signs for objects. Putnam has labelled this platitude "Trivial Semantic Conventionality":

> It is a triviality that we might have meant something other than we do by the noises we use. The noise "pot" could have meant what is in fact meant by the word "dog", and the word "dog" could have meant what is in fact meant by the word "fish" (1975: 164).

As a criticism of the Mīmāṃsā doctrine, this objection is hardly new: it was made first by the early Buddhists (Jayatilleke, 1963: 314), and was repeated by the earliest exponents of Nyāya (*Nyāya-sūtra* 2.1.56). There is, however, a philosophically more important dimension to the Mīmāṃsā theory, which is that even if words *qua* signifiers could have had different referents, the words as they in fact are, as part of an established language, cannot refer to something else. As Matilal remarks, "The [Mīmāṃsā] has ... made one important point regarding the givenness of the language and the word-object connection. Within a linguistic community, the [word-object] connection cannot easily be tampered with" (1990: 30). Kaplan has recently come out in favour of a similar claim:

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[29]Mohanty, (1992: 92); Matilal, (1982: 87-8).

> though Alpha Centauri might have been named "Hesperus"...it does not follow that our name "Hesperus" might have named Alpha Centauri (1990: 118).

The Mīmāṃsaka has thus succeeded in highlighting an important linguistic phenomenon, the givenness of linguistic relations within a linguistic community, and has proposed an explanation, that words are permanent, natural entities having their linguistic properties or powers intrinsically. The Nyāya, who reject this theory in favour of a convention-based approach, must find an alternative explanation of the givenness-from-within of linguistic relations. Their claim that the meaning rules are based on objective mandates is significant here; they are objective in the sense that once endorsed by the linguistic community, they are no longer revisable. It is, by analogy, no longer open for chess players to change the knight's move, and still regard themselves as playing chess, in the way that it is presumably open for drivers to agree by mutual consent to drive on the right. A language is, for the Nyāya, a social institution, governed by normative rules prescribing the way each word is to be interpreted. The problem which faced the Nyāya was to devise a theory which recognises both the trivial arbitrariness of language and the normative constraints it imposes on its speakers. An appeal to the authority of the name-giver does achieve this, but, as I have argued, can only work as an account of that part of the language which is introduced explicitly.

This completes my examination of the *Śaktivāda.* I have referred at various times to the Navya-Nyāya technical language, and I would like now to describe in more detail its logical structure and expressive power.

Appendix

The Technical Language of Navya-Nyāya

Navya-Nyāya is one of the Indian medieval philosophical schools. It was founded by Udayana (ca. 1050 C.E.), developed by Gaṅgeśa (ca. 1200 C.E.), and reached its peak in the works of Raghunātha (ca. 1500 C.E..), Jagadīśa (ca. 1600 C.E.) and Gadādhara (ca. 1650 C.E.). The school is notable for its development of a formal or technical language, by means of which it clarified many philosophical questions in the traditional Indian debate. This technical language rapidly became the standard idiom for academic works in Sanskrit, not only in philosophy, but in grammar, poetics, law, and other branches of study as well. A careful analysis of the conceptual framework and expressive power of the Navya-Nyāya technical language is therefore of considerable importance in the modern study of the Indian academic literature.

1.1 Ordinary Sanskrit is regarded by Navya-Nyāya as an imperfect vehicle for philosophical discourse, mainly because it is infested with ambiguity. It is not just the presence of ambiguities in the lexicon, homonymous words like "*saindhava*" (which can mean either salt or a horse), for it is always possible to eliminate such terms in favour of words which are not ambiguous. The greater problem derives from the absence in ordinary Sanskrit of any systematic or compulsory use either of articles or quantifier expressions. In English, the combination of an "applicative" (Geach, 1980: 73), that is, an expression like "a", "the", "all", "some", or "most", with a substantival general term such as "pot" or "cow" forms a descriptive or quantified phrase. In Sanskrit, however, an inflected noun or noun phrase occurring by itself often has the same syntactic role. So, for example, the sentence *ghaṭo nīlaḥ* "pot [is] blue" might mean either "the pot is blue", "some pot is blue" or "every pot is blue". Similarly, a phrase like "cause of fire" might signify the cause of a certain fire ("The cause of [the] fire is unknown"), the cause

"There is a body of smoke which is the effect of every fire". This scope ambiguity is not the result of any putative ambiguity in the nouns, but is due to an ambiguity in the syntax of the language.

1.5 When sentences contain relational expressions, there is room for still another sort of ambiguity. Compare the sentences "Pothood is in a pot" and "The cat is in the kitchen". In the first case, the relational expression "in" (or the locative post-noun) indicates the relation of inherence, but in the second it indicates the relation of containment. The English expression "is" is similarly ambiguous, sometimes indicating identity, sometimes existence, and sometimes predication. This kind of ambiguity concerns the semantic role of the relational expression in the sentence (c.f. Sainsbury, 1979: 136)[2]. Naiyāyikas claim that the negation particle *na* "no" suffers from ambiguity in this way: it sometimes indicates a "mutual absence" (*anyonyābhāva*), i.e. the negation of an identity, but sometimes a "relational absence" (*saṃsargābhāva*), i.e. the negation of a predication (c.f. Matilal 1968: 94-5; Ingalls 1951: 54-5).

2.1 If an ordinary language "with all its ambiguities and abominable syntax" (Russell, quoted in Sainsbury, ibid.: 134) is ill-suited for the careful formulation of philosophical doctrines, the alternative is to construct a formal artificial language free from these defects. This is exactly what Navya-Nyāya does. Authors such as Frege, Russell, and Quine, all of whom introduce artificial or formal languages, differ in their opinions as to the relation between the formal language and ordinary languages, and it is not entirely clear how the Naiyāyikas conceived of the relation between ordinary Sanskrit and their technical language. Minimally, however, we might suppose it to be such that corresponding to each of the various possible readings of an ordinary Sanskrit sentence, there should be just one sentence in the formal language.

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[2] Or, if we agree with the Nyāya that the relational element is indicated, not by an explicit expression, but by grammatico-syntactic features (ā*kāṅkṣā*) of the sentence, we must locate the ambiguity there.

2.2 The Nyāya language includes a small number of logical words, especially "substratum" or "locus" (*adhikaraṇa, ādheya*) and its inverse "occurrence" (*vṛtti*), "conditioner" (*nirūpaka*), "delimitor" (*avacchedaka*) and "absentee" or "counterpositive" (*pratiyogin*), together with a non-logical vocabulary of terms and relation-expressions. Accompanying the language, there is a formalised ontology, which is a modified version of the Vaiśeṣika system of categories. Modern interpreters of Nyāya disagree on whether the Nyāya ontology is extensional or intensional. On the one hand, Nyāya exploits the various abstraction devices in Sanskrit, and speaks of pothood or cause-of-fire-hood where we might speak of the class of pots or the causes of fire. Yet, when one examines the role of such abstract properties in the theory, it is very often only their extension which is semantically relevant. When developing the Nyāya system, I shall follow the strategy of using a set-theoretic ontology as far as possible. It seems that Nyāya tries in the main to avoid disputes about ontology, and develops a theoretical language which can be used even by those who do not share its ontological dispositions (c.f. Matilal 1971: 66; S. Bhattacharyya 1987: 201). The mention of properties in the Nyāya formal language seems then to be mainly pleonastic[3].

2.3 The Nyāya language is not a symbolic one. It does not, for example, employ variables, although "dummy singular terms" (Matilal 1968,: 23) like *ghaṭa* ("pot"), as well as the pronouns *tat* "that" and *sva* "own-" sometimes function in the same way. The sentences in the Nyāya language therefore resemble "long-hand" versions of symbolic formulæ and as a result are notoriously cumbersome. In principle, however, there is no reason why the Nyāya language cannot be symbolised, and I shall attempt to construct a symbolic notation for a fragment of the language here. We can denote this fragment by NN. As long as we restrict our attention to the sentences for which a set-theoretic ontology is sufficient, this fragment should be equivalent to some part of first-order predicate logic, and it will be interesting to find out which part this is.

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[3] I will, in effect, be ignoring the 'guise' element in the meaning of sentences.

3.1 A syntax for the fragment NN of the Nyāya technical language is built up from the following components.

(1) There is a set of **primitive terms**, such as *ghaṭa* ("pot"), *go* ("cow"), etc. i.e. the nouns or uninflected nominal stems (*nāman, prātipadika*). We shall use the Roman letters "a", "b", etc. for these primitive terms.

(2) There is an **abstraction functor** *-tva* or *-tā* ("-ness", "-hood"), the operation of which on a primitive term like *ghaṭa* "pot" gives rise to an abstract term *ghaṭatva* "pothood". I will use the Greek letters "α", "β", etc. as abstract terms.

Some Naiyāyikas employ a second abstraction functor *-vyaktitva* ("-individual-hood"), e.g. *ghaṭavyaktitva* "pot-individual-hood". This functor allows us to replace any particular use of a primitive term with a corresponding abstract term. Nyāya sometimes uses this device to eliminate primitive terms from its technical language. It partially resembles Quine's elimination of proper names like "Socrates" in favour of predicates like "x Socratises" (Quine, 1960: 181).

(3) There is a set of **relational abstract expressions**, such as "locushood", "causehood", "cousinhood", "pervadedness", some logical and some non-logical. There is also a corresponding set of inverse relational abstract expressions, "superstratumhood", "effecthood", etc. I will use bold letters, e.g. "**R**" for these expressions.

(4) There is a **conditioning operator**, which combines a relational abstract expression with a term (of any kind) to form a term, such as "locushood-conditioned-by-pot" (*ghaṭa-nirūpitādhāraṇatā*) or "causehood-conditioned-by-smokehood" (*dhūmatva-nirūpita-kāraṇatā*). I shall call such expressions "relational terms". Nyāya often abbreviates them to "locushood-to-pot" (*ghaṭīyādhāratā*) etc. (c.f. Ingalls, 1951: 83). A conditioned relational abstract is represented here by writing the conditioner letter on the right hand side of the relational abstract expression, thus "**R**β".

(5) There are two kinds of **sentence-forming operator**. One combines a relational term "**R**β" with another term to form a sentence "a.**R**β" or "α.**R**β". This

operator is named "location" or "residence" (*niṣṭhana*) if the term is primitive, and "delimitation" (*avacchedana*) if it is abstract. For example "locushood-conditioned-by-pot is resident in ground" (*ghaṭa-nirūpitādhāraṇatā sā bhūtalaniṣṭhā, or ghaṭa-nirūpitādhāratāśrayaṃ bhūtalam*) or "causehood-conditioned-by-smokehood is delimited by firehood" (*dhūmatva-nirūpita-kāraṇatā sā 'gnitvāvacchinnā*).

The second sentence-forming operator, colocation (*sāmānādhikaraṇya*), represented here by a colon, combines an abstract term "α" with a relational term "**R**β" to form a sentence "α:**R**β".

(6) There is a **negation functor** "-absence" (*atyantābhāva*), which forms negative terms such as "pot-absence" (*ghaṭābhāva*) from terms. By definition, the negative term "pot-absence" is identical with the relational abstract term "absenthood-conditioned-by-pot" (*ghaṭa-nirūpitānuyogitā*), where "absenthood" (*anuyogitā*) is a logical relational abstract expression. We shall write "absenthood" as "**N**", and negative terms as "a-absence" or "**N**a" etc. There is also a **sentence negation** "not" (*na*). Thus, "causehood-conditioned-by-smokehood is not delimited by firehood" (*dhūmatva-nirūpita-kāraṇatā sā 'gnitvānavacchinnā*). Nyāya avoids sentential negation wherever it can (c.f. Matilal 1985: 116), but cannot eliminate it altogether (see below).

The syntax of NN thus consists of relational abstract expressions, various different kinds of term expressions - primitive, relational, abstract, and negative - and a negation particle.

4.1 For the semantics of NN, I shall, as already stated, only draw upon a set-theoretic ontology. Nyāya does not use set-theoretic notions like set inclusion or set membership, but prefers to talk instead of properties occurring in objects, or co-occurring with other properties etc. It is for this reason that it is sometimes said to have a "property-location language". However, since its semantic vocabulary is often clearly extensional (properties which are equipollent (*samaniyata*) are in many cases identified),

there is little harm in using a set-theoretic notation[4]. We can then assign, to each expression in the syntax, an element or set as follows.

(1-2) As noted above, the Nyāya regard nouns sometimes as functioning like singular referring expressions. When thus used, they will share with indexicals the property of taking a different referent depending on the context of use. To each occurrence of a primitive term like "pot" is therefore assigned an object P, such that P belongs to the set π of pots. And to the corresponding abstract term "pothood" is assigned the property pothood. In keeping with our simplifying restriction, let us assign to such an expression the set π of pots[5]. It is now possible for any particular use of an noun-phrase in the ordinary language to be mapped either to a primitive term having a particular value, or else to the corresponding abstract term, whose value is a class.

Corresponding to each occurrence of a primitive term, there is an abstract term formed by the application of the individuality abstraction functor, for example, the term "pot-individual-hood" (*ghaṭavyaktitva*. See Matilal, 1968: 57). If the value assigned to a particular occurrence of the primitive term is P, then the set assigned to this abstract term is the unit set {P}, i.e. the property of being this very pot.

(3-4) Let us next introduce a number of relations. In set theory a relation is a sub-set of the Cartesian product of two sets, A and B, the former being the range and the latter the domain of the relation. In other words, a relation is a set of ordered pairs. Naturally, there is a degree of anachronism in using such a notion of relation to explicate the Nyāya system. Yet since the Nyāya claim that a relation is made up of a collection of relation-particulars, each of which is individuated by specifying the two relata (c.f. Matilal, 1968: 33-34), the anachronism may be justifiable. Now given any relation, we can form a series of sets, the extensions of relational properties, as follows. Suppose that an object b is in the domain B of the relation R. Then we can form the set of elements in

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[4]Note, however, Ingall's reservation (1951: 50), and Bhattacharyya, (1987: 290).

[5]Recall Kātyāyana's aphorism under Pāṇini-sūtra 5.1.119: "the abstraction suffixes [i.e. -hood, -ness, -ity] such as *-tā* and *-tva* (added to nominal stems) 'express' (*abhi* +√*dhā*) only those qualities (*guṇa*) on the basis of which the nominal stems are used to refer to things". See chapter 1.

A which are related by R to b. Similarly, given a set β in B, we can form the set of elements in A which are related by R to some element in β. In the standard terminology of relations, this set will be the image of β under the inverse of R. Now, if b is an object assigned to an occurrence of the primitive term "b", or β is the set assigned to an abstract term "b-hood", then we shall say that the set thus formed is the set assigned to the relational abstract term "R-hood-*conditioned-by*-b(-hood)". For example, the set assigned to the relational abstract term "causehood-conditioned-by-pot-hood" (*ghaṭatva-nirūpita-kāraṇatā*) comprises those objects which are the cause of a pot. Let such sets be assigned to "**Rb**" or "**Rβ**".

Given any relation R, it is possible to form an inverse relation R^{-1} such that $yR^{-1}x$ iff xRy[6].

(5) If "a" is a token of a primitive term, and "**Rβ**" is a relational abstract term, then the sentence "**Rβ** is *resident in* a" (or equivalently "a is *the locus of* **Rβ**"), i.e. "a.**Rβ**", is true iff the object assigned to "a" is a member of the set assigned to "**Rβ**". Similarly, if "a-hood" is an abstract term, then the sentence "**Rβ** is *delimited by* a-hood", i.e. "α.**Rβ**", is true iff the set assigned to "a-hood" is contained in the set assigned to "**Rβ**"[7]. For example, the sentence "causehood-conditioned-by-smokehood is delimited by firehood" is true iff the set of fires is a subset of the set of causes of smoke.

The sentence "a-hood is co-located with **Rβ**" is true iff the intersection of a-hood with Rβ is non-empty, e.g. iff there is a fire which is the cause of smoke.

(6) The Nyāya treatment of negative terms is a little peculiar. Nyāya in fact expands its ontology to include, for every object such as a pot P, an "absentee" or "anti-object" (*abhāva*), an absence of the pot P for example. It expresses the fact that P is not on the table by saying that the anti-object absence-of-P *is* on the table. Given a token primitive term such as "pot", we can form a negative term "pot-absence" by means of the

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[6] Ingalls (ibid.: 47) suggests that not all relations are invertible, but his reason for saying this isn't clear to me.

[7] This is the definition of a limitor as "that which occurs in no more [than the abstract]" (*anatirikta-vṛtti*). See Matilal, (1968: 76).

relational abstract term "absenthood-conditioned-by-pot": the set assigned to "pot-absence" is the set of absences which are absences of the pot P. In fact, since the absence relation is one-one, there is only one such absence, and it is called a "specific" absence (*viśeṣābhāva*) (c.f. Ingalls, ibid.: 56). Given an abstract term such as "pothood", we can form the negative term "absenthood-conditioned-by-pothood" (unfortunately also written as "pot-absence"), to which is assigned the set of absences which are absences of some pot or other. Nyāya also says that there are "generic absences" (*sāmānyābhāva*), the absence of any pot, for example. We will see later how such generic readings of "absence of pot" are obtained in the Nyāya language.

4.2 This completes the semantics of NN, but I would like to note a frequently encountered extension. When the conditioner of the relational abstract term "R-hood" is a primitive term "b", Nyāya sometimes reformulates "R-hood-conditioned-by-b" as "R-hood-conditioned-by-R^{-1}-hood-resident-in-b" (e.g. *ghaṭa-niṣṭha-kāryatā-nirūpita-kāraṇatā*). Similarly, when the conditioner is an abstract term "b-hood", Nyāya sometimes reformulates "R-hood-conditioned-by-b-hood" as "R-hood-conditioned-by-R^{-1}-hood-delimited-by-b-hood" (e.g. *ghaṭatvāvacchinna-kāryatā-nirūpita-kāraṇatā*)[8]. The use of the terms "conditioned by", "resident in" and "delimited by" in these neologisms are distinct from, although related to, their use above as term- and sentence -forming operators. The point to these reformulations is as follows. Suppose that an object a is in the domain A of the relation R. Then we can form the set of elements in B which are related by R to a. Similarly, given a set α in A, we can form the set of elements in A which are related by R to an element in α. Now, if a is an object assigned to a token primitive term "a", or α is the set assigned to an abstract term "a-hood", then we shall say that the set thus formed is the set assigned to the relational term "R-hood-resident-in-a" or "R-hood-delimited-by-a-hood" respectively. For example, the set assigned to the relational abstract term "causehood-delimited-by-fire-hood" (*agnitvāvacchinna-kāraṇatā*) comprises those objects which are the effect of a fire. Let

[8] C.f. Ingalls, (ibid.: 46); Matilal, (1968: 80).

such sets be assigned to the terms "aR" or "αR" respectively. The reformulation relies on the identity of **R**b with b$\mathbf{R}^{-1}$, and of **R**β with β$\mathbf{R}^{-1}$. Nyāya sometimes calls the notion of delimitation in such a reformulation delimitation-by-conditioning (*nirūpitatva-saṃbandhāvacchinna*), to distinguish it from the sentence forming delimitation-by-residence (*niṣṭhatva-saṃbandhāvacchinna*) introduced earlier[9]. Conditioning delimitors, by contrast, are 'fragments' of a term. The reformulation leads to a pleasant simplification in certain cases. When the relation R is one-one, or when the relation restricted to the sets α and β is itself a sub-relation, then α.**R**β iff β.$\mathbf{R}^{-1}$α . In such a case, we can say that **R** as conditioned by β$\mathbf{R}^{-1}$ is delimited by α iff **R** as conditioned by α$\mathbf{R}^{-1}$ is delimited by β (e.g. *ghaṭatvāvacchinna-kāryatā-nirūpita-kāraṇatā sā daṇḍatvāvacchinnā*, and *vice versa*). However, I will ignore this extension in what follows.

5.1 We are now ready to see how an ordinary Sanskrit sentence, for example "pot is on table" (or the Nyāya example "*bhūtale ghaṭaḥ*"), is disambiguated in the Nyāya technical language. Nyāya resolves the ambiguity of semantic role in the relation expression "on" by saying that contacthood, rather than inherencehood etc. is the "limiting relation" (*avacchedaka-saṃbandha*) of the sentence[10]. Having done that, it needs to distinguish eleven distinct readings, which it does as follows. (1) "A particular table t is the locus of a particular pot p". This would be expressed by saying that the relational abstract locushood conditioned by the pot p is resident in the table t. In our symbolic notation, we would write "t.Ʒp", where "t" represents the token primitive term "table" whose value is t, "p" the term "pot" whose value is p, and "Ʒ" the relational abstract locushood. "t.Ʒp" is true iff t ∈ Ʒp, the class of objects on which p is located. (2) "t is the locus of some pot". The Nyāya paraphrase is: the relational abstract locushood conditioned by pothood is resident in t. Symbolically, "t.Ʒπ", where "π"

[9] c.f. Ingalls, (ibid.:50); Matilal, (ibid.: 75).
[10] Ingalls (ibid: 51); Matilal, (ibid: 77).

represents the abstract term "pothood", whose value is the class π of pots. "$t.\Im\pi$" is true iff $t \in \Im\pi$, the class of objects on which some pot is located. A sentence for which (2) might be the most natural construal is "[The] mountain possesses fire" (*parvato vahnimān*). (3) "t is the locus of all pots". This is turned around to read "Every pot occurs on t", and is paraphrased as: occurrenthood-to-t is limited by pothood, where occurrenthood (*vṛtti*, *ādheyatā*) is the inverse of locushood. In our notation, this reads as "$\pi.\Im^{-1}$ t", which is true iff $\pi \subset \Im^{-1}$ t, i.e. the class of pots is a sub-set of the class of things located on t. Nyāya sometimes says that t is the "generic locus" of pot (c.f. Ingalls, ibid.: 50). Reading (3) is especially natural when absence is involved. As Ingalls notes, "an absence the [absenteehood (*pratiyogitā*, i.e. the inverse of absenthood)] to which is limited by a generic character or by a property common to several entities is termed a generic absence (*sāmānyābhāva*). Notice that generic absences have the effect of negating all particulars of a given class" (Ibid.: 56). Clearly, we should not think of generic loci or generic absences as a special kind of entity. (4) "Some table is the locus of p" (i.e. "p is on a table"). Nyāya says here that occurrenthood-to-tablehood is resident in p (p possesses the property of occurring on a table.). Symbolically, "$p.\Im^{-1}\tau$", where "τ" is the abstract term "tablehood", which is true iff $p \in \Im^{-1}\tau$, the set of objects which occur on a table. (5) "Every table is the locus of p". Locushood-to-p is limited by tablehood, i.e. "$\tau.\Im p$", which is true iff $\tau \subset \Im p$. We find in the early Naiyāyika Vātsyāyana's discussion of semantics, the sentence "[A] cow should not be kicked [by you]", which may very well serve as an example of this reading. (6) "Some table is the locus of some pot". Nyāya would say here that locushood to pothood is co-located with tablehood. I.e. "$\tau{:}\Im\pi$", which is true iff $\tau \cap \Im\pi \neq \varnothing$. (7) "Every table is the locus of some pot". This has two readings: (7i) "every table has some pot or other on it", and (7ii) "there is a pot which is on every table". Nyāya expresses the first reading by saying that locushood to pothood is delimited by tablehood, i.e. "$\tau.\Im\pi$", which is true iff $\tau \subset \Im\pi$, (the set of tables is a subset of the set of things with pots on). We might borrow another of Vātsāyana's sentences, "[A] cow is born of [a] cow" to illustrate this reading.

It is also a reading closely connected with the Naiyāyikas' notion of pervasion (*vyāpti*). For example, "fire pervades smoke" means that every locus of smoke is also a locus of fire. I shall discuss (7ii) below. (8) "Some table is the locus of every pot". Again, there are two readings, (8i) "every pot is on some table or another", and (8ii) "there is a table which is the locus of every pot". The first reading is naturally expressed by saying that occurrenthood to tablehood is bound by pothood, i.e. "$\pi.\Im^{-1}\,\tau$". (8ii) requires a similar treatment to (7ii). (9) "Every table is the locus of every pot". This too will be discussed below.

6.1 The structure of the Nyāya formal language might be further clarified if we can set up a "translation manual" between NN and some fragment of the predicate logic, presumably a fragment containing diadic predicates and quantifiers. The examples discussed above suggest the form such a translation manual might take. From readings such as (1), it is clear that each occurrence of a primitive term will translate into an individual constant. Consider now a sentence like "fire causes smoke" (i.e. reading 7(i) above). The Nyāya form first the expression "causehood-conditioned-by-smokehood", which translates into the open sentence "(∃x:smoke)(y causes x)", where ":f" indicates a restriction on the domain of quantification to things that are f. The original sentence is then paraphrased as "causehood-conditioned-by-smoke is delimited by fire", which translates as "(∀y:fire)(∃x:smoke)(y causes x)". So a conditioner maps to an existential quantifier, whose domain is restricted to the class assigned to the conditioner, and which binds the second place of a diadic predicate. Similarly, a delimitor maps to a universal quantifier, whose domain is restricted to the class assigned to it, and which binds the first place of a diadic predicate. It is clear from the way sentences are constructed in NN that the universal quantifier corresponding to the limitor always has wider scope than the existential quantifier corresponding to the conditioner. Finally, the co-location operator will translate into an existential operator binding the first place of the diadic predicate, for a sentence like (6), "locushood-conditioned-by-pothood is co-located with tablehood"

("$\tau:\mathfrak{S}\pi$") translates to "$(\exists x:\tau)(\exists y:\pi)$ (xLy)". In this way the technical language formalises an ambiguity in the semantics of an ordinary noun-phrase, by translating it into either a token primitive term or an abstract term, and assigning to it either an individual or a class[11].

6.2 The ordinary sentence "pot is not in the room" has three distinct readings. It might mean that a certain pot p is not in the room; or that there is a pot which is not in the room; or that no pot is in the room. The third reading is usually the most natural. In NN, we can form from a primitive term "pot", a negative term "pot-absence". We can also form a negative term from the abstract term "pothood", also expressed as "pot-absence". These two terms are by definition equivalent to the relational terms "absenthood-conditioned-by-pot" ("**N**p") and "absenthood-conditioned-by-pothood" ("**N**π"), where the relation of absence is a one-one relation between any entity and its negative entity or absentee. The first reading is now expressed as "t.L(**N**p)", i.e. "t is a member of the set of loci of absentees of p", i.e. "- tLp". The second reading is expresses as "t.L(**N**π)", i.e. "t is a member of the set of loci of absences of a pot", i.e. "t is a member of the set of objects which are such that there is a pot for which it is not the locus", i.e. "$(\exists y:\pi)$ (–tLy)". Note how this shows that the absence relation, with its corresponding negative terms, is equivalent to a negation which always takes narrowest scope. To catch the third, and most natural, reading of the sentence, i.e. "No pot is on the table" or "The table is the locus of the absence of all pots", Nyāya makes pothood the delimitor of absenteehood (*pratiyogitā*), the inverse of absenthood (c.f. Matilal, ibid.: 80-1). The obvious candidate is "$\pi.\mathbf{N}^{-1}(\mathfrak{S}^{-1}t)$", i.e. "absenteehood-conditioned-by-superstratumhood-conditioned-by-table is limited by pothood" (*bhūtala-nirūpita-ādheyatā-nirūpita-pratiyogitā sā ghaṭatvāvacchinnā*). This expands as "the set of pots is a subset of absentees for which there is an absence in the set of superstrata of t", i.e. "the set of pots is a subset of the set of objects whose absence is located on t", i.e. "$(\forall x:\pi)$(-

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[11] The idea that nouns are ambiguous in this way was first clearly stated by the *tadvat* theorists, Uddyotakara and Jayanta. See their comments under Nyāyasūtra 2.2.66, and Matilal, (1971: 67-9).

tLx)". We might note that, as long as negative terms are only used for the adjunct of another relation, the negative objects are "virtual" entities; they are always quantified out of the final sentence. Matilal (1985: 112ff.) exploits this fact to construct a semantics in which every property has a "presence-range" and an "absence-range", corresponding to the set of loci of the property and the set of loci of the absence of the property.

6.3 The problem of scope ambiguity is usually illustrated by a sentence like "Everybody loves somebody". It is possible to read this sentence in two ways, as saying that given any person, there is someone who loves them, or as saying that there is a person who is loved by everybody. In this second reading, the existential quantifier precedes the universal quantifier. It therefore poses a problem for the Nyāya formal language, in which the universal quantifier or limitor always has widest scope. However, suppose we consider the third 'generic' reading of "pot is not on a table". The NN expression of this is " $\pi.\mathbf{N}^{-1}(\Im^{-1}\tau)$", i.e. "absenteehood-conditioned-by-superstratumhood-conditioned-by-table is limited by pothood", i.e. "the set of pots is a subset of the set of objects whose absence is located on t", i.e. "$(\forall y{:}\pi)(\exists x{:}\tau)(-tL^{-1}x)$". If this is *not* true, then there is a table which is not the locus of the absence of any pot, i.e. a table which is the locus of every pot. So the second reading can be expressed as "not $\pi.\mathbf{N}^{-1}(\Im^{-1}\tau)$", i.e. "absenthood-conditioned-by-occurrenthood-conditioned-by-pothood is not delimited by tablehood". In the predicate calculus, this result can be expressed via the theorem: $(\exists y{:}\beta)(\forall x{:}\alpha)(xRy) = -(\forall y{:}\beta)(\exists x{:}\alpha)(-xRy) = -(\forall y{:}\beta)(\exists x{:}\alpha)(-yR^{-1}x)$. So with the help of a negation which always takes narrowest scope (the term negation) and one which always takes widest scope (the sentence negation), we can express the mixed readings. An exactly analogous tactic will obtain (9) from (6). It seems that only in such cases is a sentential negation ineliminable.

7.1 The Nyāya language NN is equivalent to a quantified language (NN*) in which each sentence is constructed as follows. (i) There is a diadic predicate "...R...". (ii) A negation (-) taking narrowest scope optionally occurs next. Thus "(-)(...R...)". (iii)

The next step is to fill the second place of the predicate, either with a constant or with a variable bound by an existential quantifier, whose range is restricted to a certain set β. We might, for simplicity, use the individualisation device to eliminate the constants in favour of bound variables. This quantifier has wider scope than the negation in (i) but narrower scope than anything else. Thus "(∃ y:π) (-)(...Ry)". (iv) Next, the left hand place is bound, either by a constant, or by a restricted universal quantifier or by a restricted existential quantifier. Thus "(∀ x:τ)(∃ y:π) (-)(xRy)" or "(∃ x:τ)(∃ y:π) (-)(xRy)". (v) The last step is the optional insertion of a negation which takes largest scope. These five steps correspond to forming a relational abstract, conditioning it with a term (possibly negative) to form a relational term, and forming a sentence using delimitation or co-location (possibly negated). It follows that every sentence in this language (NN*) has the structure (-)(∀/∃)(∃)(-)(...R...). Unlike predicate calculus, the order of the various components is fixed. However, it seems possible to show that every sentence composed from a diadic predicate, one or two quantifiers, and negation, with no restrictions on the order in which these elements occur, is equivalent to a sentence having the structure of the sentences in NN*. For the formula (-∀ = ∃-) permits any sentence of the form (∃∀) or (∀∀) to be transposed into one of the form (∀∃) or (∃∃) respectively, and also permits the transformation of any sentence in which a negation occurs between two quantifiers into one having only narrow or wide scope negation, appropriately inverting the diadic predicate if necessary. Also, a restricted quantifier can be replaced by an unrestricted quantifier together with an appropriate predicate. So the language NN* is equivalent to that fragment of the predicate calculus whose sentences take the form "(Fx&Gy & xRy)", quantified and negated according to taste.

7.2 The language NN seems to capture some of the logical apparatus used by the Navya-nyāya authors. I would not claim more than that. The Nyāya authors themselves do not draw such a sharp distinction between terms and sentences as is done in NN, and do not, as far as I am aware, show much interest in the problems of scope ambiguity (and hence understate the need for a sentence negation). There are also many

other Nyāya technical notions, for example to do with the concatenation of relations and terms, identity, etc. Moreover, the use of the technical vocabulary varies a little from author to author. And often the language is used in only a semi-formal way, especially when used by non-Nyāya authors. Thus NN is itself a "regimentation" of the Naiyāyikas' technical language.

7.3 One of the insights which marked the advance from scholastic or medieval logic to the quantifier theory was the realisation that sentences should be seen as constructed in a series of stages, and not as constructed simultaneously from their component elements[12]. The two readings of "Someone loves everyone" cannot be distinguished if we regard the two expressions of generality and the relational expression as simultaneously synthesised; instead, we should see the sentence as built up from the relational expression "...loves..." in two steps. First, we form a predicate "someone loves..." or a predicate "...loves everyone", and then we fill in the remaining place. Dummett notes that in an ordinary language, there is an "ad hoc convention", that "the order of construction corresponds to the inverse order of occurrence of the signs of generality in the sentence" (Dummett, 1981: 12). This convention works because every sentence has both an active and a passive form, in which the order of the signs of generality are reversed. Thus, the active form "someone loves everyone" and the passive form "Everyone is loved by someone" are most naturally heard as expressing different readings of the sentence (although strictly each is ambiguous).

The Navya-nyāya technical language seems, as I have tried to show, to encode the insight that sentences are constructed in stages, and for this reason Navya-Nyāya side-stepped the need for a counterpart of the "shipwrecked" (Geach, 1980: 105) medieval doctrine of suppositio. It is true that their language formalised the "ad hoc convention", and so lacked the elegance or clarity of a quantifier-variable system. Moreover, when a sentence is such that, in the quantifier system, several argument-places are filled by the same bound variable, the Nyāya language resorts, as does

[12] c.f. Dummett (1981: 10ff); Geach, (1980).

ordinary language, to the use of pronouns in order to generate an equivalent sentence in which the sign of generality occurs only in a single place[13]. On the other hand, Dummett's criticism of natural languages, that they "work by means of principles which are buried deep beneath the surface, and are complex and to a large extent arbitrary" (ibid.: 20), seems less applicable to the Nyāya language than to ordinary Sanskrit, for the principles to which it appeals are generally systematic, explicit, and, most importantly, unambiguous.

8.1 The application of the Navya-Nyāya logical apparatus in their semantic theory leads to an important clarification of the concept of a meaning-invariant (*pravṛtti-nimitta*). The Nyāya represent linguistic competence as knowledge of the meaning clause or semantic axiom for the word in question. In the case of a common noun, used as an indexical referring expression, the rough form of the meaning clause is:

MC [The] word "cow" 'means' (i.e. refers to) [a] cow[14].

As it stands, the meaning-clause **MC** is ambiguous; being a relational expression flanked by two nouns, it has the same form as "pot is on table". Since each noun can be read in one of three ways (e.g. "[the] pot", "[a] pot", or [all] pots"), there are nine distinct readings of this sentence (plus two more when we allow for scope ambiguities). Navya-Nyāya therefore uses its technical language to disambiguate the meaning-clause.

Before seeing how **MC** is disambiguated though, let us note how the Vyāḍīya Particularist, who lacks the logical apparatus available to Navya-nyāya, is forced to interpret the sentence in a way which opens the door to the problem of 'limitlessness' (*ānantya*). The limitlessness argument highlighted an important feature of the semantics of nouns, namely, that a noun can be used to refer to any one of a range of different individuals. The reason why the Particularist cannot adequately account for this

[13]c.f. Dummett (Ibid.: 13), Matilal, (1968: 23).

[14]In Sanskrit, it is variously expressed as "*go-padaṃ gāṃ vakti*", "*go-padaṃ gāṃ brute*", "*go-padaṃ gor vācakam*", "*go-padena gaur ucyate*", "*go-padasya gaur vācya*" etc. See (Gadādhara, 1927: 6), and also Matilal, (1982).

phenomenon is that she must interpret the used word "(the) cow", as it occurs in the meaning-clause, as referring to some particular cow. Thus the sentence is in effect given the first of the eleven readings distinguished in §5.1. This would, of course, make sense as a clause for some single word token, but since a distinct clause is then needed for each such token, Vyāḍi's theory analyses a nominal as being radically homonymous.

The early Nyāya authors, especially Uddyotakara and Jayanta, suggested that the meaning-relatum of a noun is a '*tadvān*' or property-possessor ("*tadvān eva padārthaḥ*", Jayanta). In other words, they offered the meaning-clause:

MC$_{\text{tadvat}}$ [The] word "cow" 'means' [a] cowhood-possessor.

They were clearly trying to express the idea that the word "cow" can refer to an individual only if that individual is a cow. The new meaning-clause seeks to exploit the synonymy of "cow" (go) with "cow-hood-possessor" (*gotvavān*), in other words, the fact that the possession affix is the inverse of the abstraction affix. Their suggestion, however, does not work, for the reason noted in Chapter 1. If the phrase "cow-hood-possessor" in the early Naiyāyika meaning-clause **MC$_{\text{tadvat}}$** is used to refer to a particular, then the clause collapses into that of the Vyāḍīya Individualist. On the other hand, if this phrase is mentioned, then the meaning-clause becomes a mere restatement of the synonymy between " w-hood-possessor" (*w-tvavān*) and "w". The equivocation between these two positions led the early Nyāya authors to speak sometimes as if a "cow-hood-possessor" was a strange kind of entity, half-way between an individual and a universal! In fact, we find even in later Nyāya talk of "complex objects" (*viśiṣta*), such as a cow-qualified-by-cowhood (*gotvaviśiṣṭago*), which seem indeed to be the "metaphysical shadows cast by grammatical confusion".

8.2 Navya-nyāya solves the problem by using their technical language to disambiguate the Particularist's meaning-clause. The Nyāya state that the meaning-invariant (*pravṛtti-nimitta*) is the delimitor of the relational abstract referent-hood

(*śakyatāvacchedaka*)[15]. If we ignore for the moment problems of token reference-failure, the required reading of the above meaning clause is: for every token of the word "cow", there is an individual cow which is its semantic value. The Navya-nyāya paraphrase of this is: referrer-hood-conditioned-by-referent-hood-delimited-by-cowhood is delimited by the word-type "cow" (*gotvāvacchinna-śakyatā-nirūpita-śaktatā sā gopadatvāvacchinnā*)· The universal cowhood thus becomes in Navya-nyāya the limitor of the relational abstract referenthood (*śakyatāvacchedaka*). In predicate logic with restricted quantification, this would become

$$\mathbf{MC_{NN}}\ (\forall y\text{: “cow”-token})(\exists x\text{:cow})(\mathrm{Ref}(y,x)).$$

The linguistic rule for a nominal is represented by the Nyāya as stating something to the effect that a token of the word "pot" refers to such an individual as is a pot. Using the Navya-Nyāya technical language, the meaning invariant is seen to be the referential delimitor or *śakyatāvacchedaka*, i.e. the bound on the permitted values able to be taken by the variable x in "w refers to x". Thus Navya-Nyāya retains the doctrine that the semantic value of a common noun is an individual, but offers a new criterion for non-homonymy: an expression is homonymous if it has a plurality of referential delimitors or *śakyatāvacchedakas*[16].

In fact, the above meaning clause seems a little too strong, for it entails that every token utterance of the word "cow" has a referent. Perhaps it is for this reason that the Nyāya sometimes read the meaning-clause the other way round, as:

$$\mathbf{MC_{NN}}\ (\forall x\text{:cow})(\exists y\text{: “cow”})(\mathrm{Ref}(y, x))$$

(*gopadatva-nirūpita-śakyatā sā gotvāvacchinnā*). This would certainly make room for the possibility of there being utterances of the term which do not refer, but only at the cost of endorsing the supposition that every cow is referred to by some (actual or

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[15]Raghunātha (1932) seems to have been the first explicitly to make this equation, but it is anticipated in Vardhamāna, (1933: 333).

[16]C.f. Gadādhara, (1927: 85): *śakyatāvacchedakatābhedena śaktibhedaḥ*.. Note also the *Nyāyakośa:* "consecutive character *anugama* means the basis for consecutive usage. For example, cowhood is the consecutive character of all cows" (*anugama = anugata-pravṛttinimittam, yathā sarveśāṃ ghaṭānām anugamo ghaṭatvam)*.

possible) utterance or another. A traditional Nyāya slogan, however, is that whatever is, is knowable and nameable, and so this consequence may have seemed acceptable. Unfortunately, whereas the earlier clause was too strong, the new clause is not strong enough, for it is consistent with there being objects other than cows referred to by the term "cow". Clearly, what is required is a clause like '$(\forall y: \text{"cow"})(\forall x)(\text{Ref}(y, x) \rightarrow \text{Cow}(x))$', which states that if a token of "cow" refers to anything, then its referent is a cow. In just the same way, we should not state the rule for "you" as: an utterance of "you" refers to the addressee, but as: an utterance of "you" refers to the addressee if there is one, and otherwise to nothing[17]. It is not, however, clear whether such a clause can easily be expressed in the Nyāya technical language.

[17]The point would be missed were we to consider only the first-person pronoun, since an utterance of "I" cannot fail to refer through there being no utterer.

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Index of Terms

ākāśa	A Vaiṣeśika technical term for the substratum of sounds (lit. 'air', 'space').
ānantya	Limitlessness - the name of an argument against Vyāḍi's theory of meaning.
anugama	A meaning-invariant: the constant element in the meaning of an indexical expression. The 'consecutive character' of the expression (c.f. Matilal 1968: 83). Lit. going after, following.
artha	The meaning-relatum, reference, or semantic value of a word (lit. object, content).
aupādhikī	A logically complex nominal term. Lit. [a term] depending on a complex condition or *upādhi.*
avacchedaka	A feature which delimits a relational abstract.
kāraka	A causal factor leading to an event.
lakṣaṇā	A non-literal and derivative meaning relation
naimittikī	natural kind nominal term. Lit. [a term] depending on a 'ground' or *nimitta.*
nirūpaka	A feature which conditions a relational abstract.
pāribhāṣikī	A term introduced by explicit stipulation
pramāṇa	A cognitive process leading to the acquisition of true beliefs (lit. the instrumental cause of a knowledge-episode).
pravṛtti-nimitta	(= *anugama,* c.f. *Nyāyakośa*, p.22). A meaning-invariant: the constant element in the meaning of an indexical expression. Lit. ground for the application [of a word to an object].

śābdabodha — A true and world-directed awareness event, derived by the hearer from the auditory perception of an utterance in accordance with the linguistic norms (lit. a language-based awareness-event).

śakti — The literal or semantic relation between word and object. Llit. [semantic] power.

śakya — (= *artha*). The meaning-relatum of a word.

sakyatāvacchedaka — (= *pravṛtti-nimitta,* c.f. Ragunātha 1932: 47). The invariant element in the meaning of an indexical expression. Lit. the delimitor of the property of being the meaning-relatum [of a word].

saṅketa — A linguistic convention. For the Nyāya, conventions are (based on) decrees or mandates, human or divine.

sarvanāma — A pronoun (lit. name for everything).

sattva — Yāska's term for the meaning-relatum of a nominal expression; "thing" (c.f. Matilal 1990: 3). Lit. being, existence, entity.

taṭastha — An evidential feature or syndrome

upalakṣaṇa — A descriptive feature which is not part of the meaning of the term, but simply fixed its reference.

vācya — (= *artha*). The meaning-relatum or semantic value of a word

viṣayatā — The structural content of an awareness event (c.f. Matilal 1986: 122). Lit. the property of being the object [of thought].

viṣayatāvacchedaka — The feature under which an object appears in an awareness-event; a 'guise' (c.f. Matilal 1985: 373). Lit. the delimitor of the property of being an object [of thought].

viśeṣaṇa — A descriptive feature which is part of the meaning of the term.

vṛtti — Any meaning relation, literal or non-literal.

vyabhicāra — Aberrancy - the name of an argument against Vyāḍi's theory of meaning.

yogyatā	The semantic 'fitness' of a statement - the condition a statement must meet in order be interpretable as expressing a truth.